THE TIMES

LITERARY SUPPLEMENT

T·L·S

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T·L·S

THE TIMES
LITERARY SUPPLEMENT

SCIENCE

FRIDAY 7 MAY 1971 . No. 3,610 . Price 10p

A noble account of the less than noble Savage

JOHNSON:
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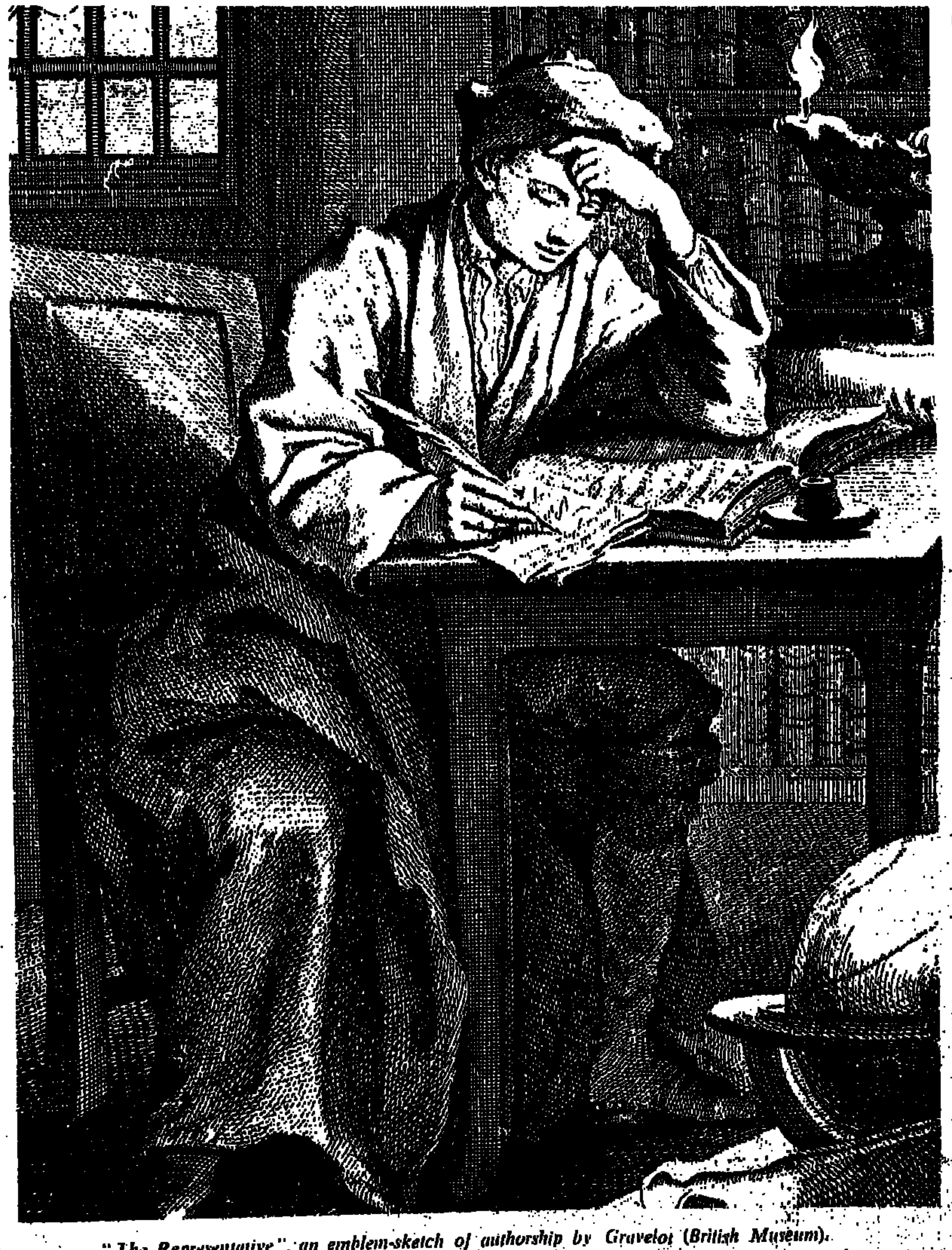

"*The Representative*", *an emblem-sketch of authorship by Gravelot (British Museum).*

's *Account of the Life Mr. Richard Savage, Son of Earl Rivers* was not his first in prose biography, but the reveal his true powers and win not only with a contemporary audience but with posterity. It is read as one of the "Lives of", those "little [and some so little] Lives, and little to a little Edition of the Poets" brought out by a of English publishers in to counter an Edinburgh which they feared might literary property. But written as a separate work, biography, and had been published 1744, not long after death at Bristol August, 1743. It is as a independent work that themselves. Professor Tracy's here.

probably too much to the *Account* as a labour of Johnson was too poor and for such self-indulgence. would be difficult even so to biographical undertaking congenial to him or more He liked the genre, had Savage personally, was able published and unpublished and he had a magnificent Savage was a natural in than one. He gave a literary triumph, and gave him immortality.

is probably the most minor literary figure of half of the eighteenth century essayed many poetic kinds: theological, commendatory, amatory, didactic, reflective and descriptive nothing of birthday similar purse-openers; he one comedy, and re-wrote a tragedy; he mean pen in the War solicited a subscription brought out a middling miscellany. The bulk of this stuff, but it reflects tastes, and unusually sensitive others were doing he his collected works but indicative contemporary practice, knows the period better them. And the of his literary to praise in the attack on his unconsenting mother *The Bastard*, the of a *Divine*, and *Author to be* would make him literary history. It is his life which has kept him alive, and the manner of its recording. For one thing, we all love a mystery. Was there such a person as Richard Savage? Certainly there was a Richard Smith, the illegitimate offspring of the rakish fourth Earl Rivers and the erring wife of the Earl of Macclesfield, born on or about January 16, 1697. Johnson says January 10, 1698 (n.s.), and where all is dubious the only purpose of a correction is to indicate that Johnson's is a credulous and often muddled witness to Richard Smith's birth, baptism, fosterage, education, nurture, survival, or death. There must always remain an unbridgeable gap between those who, like Johnson, accepted Savage's account of his early life and those who, like the reviewer, do not, but those in the middle too find the facts uncertain and their interpretation difficult.

We must also not fail to notice that, unless Johnson had what in the nature of the case we assume he could not—that is, incontestable proof of the truth of Savage's claim to be the person he said he was—we must set against his much praised championship of a personal friend, and his readiness to give the benefit of the doubt to one admittedly in need of it, the injustice and hostility of his treatment of the Countess of Macclesfield. For there is no reliable news of Richard Smith after his infancy. His mother never varied her story that he died early; and his father, thus informed, made no mention of him in his will, though he provided generously enough for a number of his other illegitimate children. Almost the only thing we are sure of is that a young man who had been apprenticed with a shoemaker in Holborn came forward, probably in 1712, with a claim to be this particular Richard Smith, took the name Richard Savage, and addressed himself to a mother's favour. By now she was married again, to a Colonel Brett. She refused to countenance his claim, give him money, permit him to enter her house, or so much as exchange one word with him.

According to the anonymous and often inaccurate *Life* of 1727, he had learnt who he was when he went through his nurse's papers after her death. Johnson never saw these indispensable documents, and Aaron Hill, who saw some "convincing Original Letters" in 1724, did not enlighten us about what they were. Whether they were promptly swept into the safe-keeping of a "just [and] powerful Hand" (Lord Tyrconnel's?) is anyone's guess, but no one, well-wisher or ill, appears to have set eyes on them since. Meantime he had to live, and sought to do so by methods literary and eleemosynary. He wrote Jacobite poems which would require a government pardon (Johnson says nothing of this), a poem on the Bangorian Controversy of which he

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quickly grew ashamed, and tried his hand at a stage comedy. He also trod the boards in his own tragedy *Sir Thomas Overbury*, an experience as trying to Savage as to the audience. To better profit he engaged the philanthropic interest of Steele, Wilkes, Mrs. Oldfield, and an assortment of the nobility. By the mid-1720s, the claimant was advancing in reputation on several fronts, and despite his frequent distressful perplexities appeared to be "gaining upon Mankind".

Then on November 27, 1727, occurred an event "of which it is not yet determined, whether it ought to be mentioned as a Crime or a Calamity". This was the murder of James Sinclair during a brawl at Robinson's Coffee-House near Charing Cross. Savage was no bully, and doubtless it was panic rather than bloodthirstiness which brought about his fatal swordthrust at Sinclair at a moment when that gentleman's weapon was already commanded by another of Savage's party, James Gregory. Savage and Gregory were sentenced to death, languished for a while in jail, and then received the royal pardon. Mrs. Brett, according to Johnson, sought to prevent the reprieve by spreading a story that the claimant had earlier tried to murder her, but this "atrocious Calumny" failed of its purpose. Instead, what followed was that Mrs. Brett's nephew, Lord Tyrconnel, took the pardoned Savage into his household and made him an allowance of £200 a year. It is generally assumed that he wished to stop a troublesome mouth with gold.

In this he did not succeed. Savage was a man who went his own road at his own impulsive gait. Still, the years from 1729 to 1735 were "the golden Part of Mr. Savage's Life", when he enjoyed a settled abode, means and credit, and the deference he thought due to a true nobleman. With these advantages he also enjoyed a higher reputation as poet and wit. He continued to put himself forward on suitable and unsuitable occasions, the most notable of these last when, having failed to succeed Eusden as poet laureate, that honour falling to Colley Cibber, he appointed himself "Volunteer Laureate" and wrote birthday odes to the Queen at £50 a time. But it was too good to last.

Tyrconnel found cause to reproach Savage for entertaining his low companions on his, Tyrconnel's, premises at his, Tyrconnel's, expense with "the utmost Extravagance of Merriment . . . the most licentious Frolics . . . and the Outrages of Drunkenness". Savage acknowledged that Tyrconnel had frequently urged him to mend his ways, regulate his hours, and devote more time to his benefactor, but manly independence compelled him to reject censure and appeal alike. It was his way, he confessed, "to spurn that Friend who should presume to dictate to him". Their quarrel smouldered and flared till in 1735 the indignant poet found himself in the street, with his golden days behind him.

From here on it matters little where we set the blame for the miseries and hardships of what remained of Savage's life. Johnson has often been charged with a friend's partiality towards him—not that there is any demerit in that—but in fact he understood him very well. The portrait that emerges in this central part of the *Account* is of a man doomed to ruin by his own temperament. If Johnson makes one thing clear it is that Savage was an impossible man to put up with.

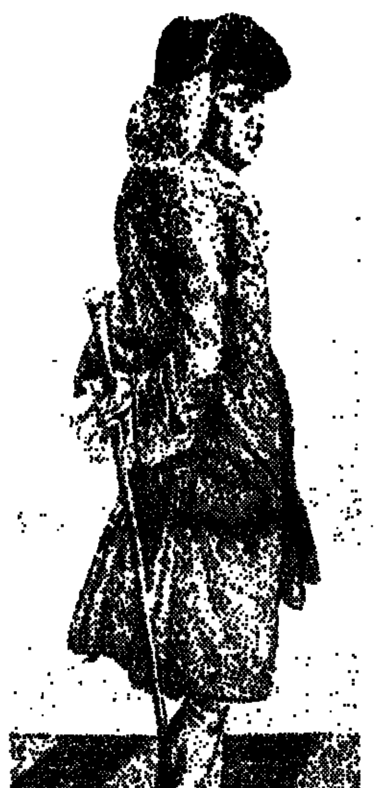
> It was his peculiar Happiness, that he scarcely ever found a Stranger, whom he did not leave a Friend; but it must likewise be added, that he had not often a Friend long, without obliging him to become a Stranger.

Or again:

> The reigning Error of his Life was, that he mistook the Love for the Practice of Virtue, and was indeed not so much a good Man, as the Friend of Goodness.

He was compassionate but resentful, open-hearted but selfish, charming but wearisome—Johnson's partiality has a remarkable way of appearing impartial in the end. Even as friend: "His Friendship was therefore of little Value"—and we remember that Johnson was not long his friend. No one could be more convinced that the world owed him a living, and no one more ungrateful for the living it provided.

After 1735 Savage's path lay rapidly downhill. There were many ill-wishers waiting to score off him; his follies continually exposed him to resentment; he lost his pension as Volunteer Laureate after the Queen's death in 1737; and he was increasingly a burden on his friends. For part of a year Johnson was to share his talk, his confidences, and some of his troubles.



> He lodged as much by Accident as he dined and passed the Night, sometimes in mean Houses, which are set open at Night to any casual Wanderers, sometimes in Cellars among the Riot and Filth of the meanest and most profligate of the Rabble; and sometimes, when he had no Money to support even the Expenses of these Receptacles, walked about the Streets till he was weary, and lay down in the Summer upon a Bulk, or in the Winter with his Associates in Poverty, among the Ashes of a Glass-house.

Eventually his friends moved from entreaty to request, and from request to command. It was put to him that he should retire into Wales with an allowance of £50 a year, and live there, privately and cheaply, without search for wealth or struggle for reputation. To a friend (presumably a sympathetic but amused Johnson) he confessed he now could not bear to debar himself from

> the Happiness which was to be found in the Calm of a Cottage, or lose the Opportunity of listening without Intermission, to the Melody of the Nightingale, which he believ'd was to be heard from every Bramble, and which he did not fail to mention as a very important Part of the Happiness of a Country Life.

But while waiting on this felicity he was advised to take refuge from duns in the Liberties of the Fleet, and subsisted on a weekly guinea which he commonly spent before the next morning. However, the project went forward, and full of salutary resolutions he left London in July, 1739, "having taken Leave with great Tenderness of his Friends, and parted from the Author of this Narrative with Tears in his Eyes". He had fifteen guineas in his pocket and was bound, it was thought, for the nightingales of Swansea.

A fortnight later these same friends received a letter informing them that he was still upon the road and out of funds. The further remittance they sent got him as far as Bristol, where he turned on his charm to good purpose, but wrote such letters of complaint to London as made various of his benefactors withdraw their contributions. Henceforth Pope seems to have carried the financial load alone, all £20 of it. Savage went on to Swansea, and met many who were most distinguished in that country, and likewise most generous. He was there or thereabouts for more than a year, rejected well-meant advices from his London friends "with the utmost Contempt", assured them that he would not be kept in leading-strings, and in his own good time returned to Bristol. Here once again he cheered and charmed the citizenry until his welcome was quite worn out and doors and purse-strings closed against him.

Suddenly he was being pursued for debt, could leave his lodgings only after dark for fear of arrest, and often went hungry to the point of faintness. There was a last remittance from London, which he promptly squandered, and after a brief period of furtive misery and evasion he was arrested for debt and in time removed to Newgate prison. He had a "tender Gaoler" in Mr. Dagg, whose virtues Johnson warmly celebrates, and filled in some of his time by writing a satire on the town in which he was pent, foreseeably to the annoyance of its inhabitants. It was now, after six months in prison, that he received a final letter from his patient benefactor Pope, containing "a Charge of very atrocious Ingratitude". It

greatly depressed him, and
was to follow. A few days
suffered pains in the back
and contracted a fever,
ready for the last, inevitable

> The last time that the Keeper
> was on *July* the 31st, 1743
> *Savage* seeing him at his Bed-
> with an uncommon Earnestn
> *something to say to you, Sir*;
> a Pause, moved his Hand in a
> choly Manner, and finding
> unable to recollect what he
> to communicate, said 'Tis
> Keeper soon after left him,
> next Morning he died. He w
> in the Church-yard of St. Pe
> Expence of the Keeper.

This is the noble *Acco*
less than noble hero which
Tracy makes available
definitive form and with
but never overwhelming
His copy-text is that of
first edition (first state), pub
1744, with such authorial
tion as may confidently
buted to Johnson himself
comes chiefly from the sec
tion of 1748 and from the
lia written by Johnson on
the sheets of the sophisticat
48 copy of the Life in the
Collection in the Glasgow
sity Library. Johnson's
footnotes and extensive sp
of Savage's writings in ve
prose have been retained,
fully so.

Professor Tracy's own
tion and notes, as befits the
of the standard modern bio
of Savage and the editor
standard edition of his poe
us just about all we need to
enjoy a work which is th
revealing of its author as its
Particularly welcome are his
tions of Johnson's good-hu
irony at Savage's expense,
stant assertion of the mor
against the friend, and his
generally available the Eng
nalia. Some of these define
of information; several
Pope by name where the
does not; but the intriguing
the last, where Johnson has
word "Added" opposite the
ning of his final paragraph
paragraph would then appe
the consequence of Johnson
that the two preceding pa
of dignified tone and co
content, did not quite e
considered verdict, which
ceeded to harden a little. Th
allows us a glimpse into J
mind as well as an insight
mode of composition.

Where has all the blue blood gone?

PEREGRINE WORSTHORNE:
The Socialist Myth
256pp. Cassell. £2.75.

Always ready to think the unthinkable and to utter the unutterable, Peregrine Worsthorne, deputy editor of the *Sunday Telegraph* and in turn one of the cleverest and silliest controversialists of the Tory counter-revolution, has been reflecting upon British politics and society during Harold Wilson's reign at Number Ten, and has arrived at a characteristically paradoxical conclusion. Mr. Wilson's government failed, and no other Labour Government is ever likely to succeed, because a democratic socialist party is inevitably committed to egalitarianism and therefore cannot of its nature produce the elite—no, more than that, the aristocracy—possessing the social authority that comes from popular recognition of superior birth, education, and style.

Let Mr. Worsthorne put it his own way:

> The purpose of this essay has been to consider not so much why one particular Labour Government failed as why no Labour Government is ever likely to succeed. Having approached the question from a variety of angles, let me conclude by summarizing what seems to me the fundamental point.
>
> It is, very simply, that democratic socialism is a contradictory combination of a political theory that needs giants to operate it and a social theory that produces only pigmies; of a political theory that requires rulers of unprecedented authority and a social theory that produces rulers of unparalleled lack of authority; of a political theory which, because it elevates the power of the state, requires a steady supply of statesmen and a social theory which refuses to tolerate conditions in which statesmen are likely to emerge.

Mr. Worsthorne argues his case with the provocative skill that has made him the most outrageously readable political commentator in London journalism. He is the most amiable and urbane of men, with no more snobbery than (say) trade union tycoons like Jack Jones or Hugh Scanlon. But he is a romanticist. He does not precisely love a lord on sight, but he has fallen under the spell of his own private conception of aristocracy, which has no relationship to the aristocracy we know. Far more than anybody who will now be found in Debrett, he believes that birth, breeding, wealth, social status, and a nice accent matter terribly, and he finds it intolerable that Mr. Wilson and Mr. Heath should be upper working-class parvenus who have got on in the world with nothing more than merit (or, rather, the democratic recognition of merit) to commend them. He misses, in British politics and society today, something he calls style, just as he misses at Westminster and in Whitehall men who may be on the dull side mentally but who have some kind of inherited instinct for governing peasants.

He is, after all, the journalist who hugely sighed with relief in 1960 when Harold Macmillan brought his nephew, the Duke of Devonshire, into the Administration in a junior post. Mr. Worsthorne took great hope from the event, on the argument that dukes govern by instinct with a minimum of error. He is also the broadcaster who not long ago lodged a public complaint that Mr. Wilson had invited him to 10 Downing Street for a cocktail party, only to affront him with other guests who were riff-raff drawn from show business. Somehow Mr. Worsthorne sought to suggest that the offence against noblesse oblige, a social principle he infinitely esteems, lay with the host and not with the guest who sat in judgment on the choice of his fellow guests. There was at least one Tory politician of impeccably ancient aristocratic lineage present who described it as the most delightful party he had ever attended: but Mr. Worsthorne's romantic heart could not take to the Cockney charms of Miss Barbara Windsor after a lifetime's devotion to duchesses.

Mr. Worsthorne is, in short, a splendid English eccentric, born out of time. Yet though he may be on occasion preposterous, he is never a fool. His voice is always as valid as the leftwing voices he challenges, and he exercises an intellectual rigour that protects him from any charge of being a hidebound rightist. There are times when he can be more acute than any of his contemporaries among political commentators and pundits, and he rarely surrenders to the fads and fashions of a social period that has lost its old standards and sense of historic continuity. His book is characteristic: it is rich in good things (not always his own but his sources) and spoilt in total by eccentricity.

The good things are the political analyses of the contradictions inherent in a party that seeks support for revolutionary change and then flinches from any kind of revolution. Either the Labour Party's claims are false, or its performance in government is inept. Either Mr. Wilson and his colleagues were Tories masquerading as socialists, or they were socialists who lacked the ability to do what they sought to do. After all, look at the record. Labour tortured the people of Britain to save the parity of sterling, and then devalued. They were elected to abolish prescription charges, and they lived on to reimpose them. They struggled to keep British forces east of Suez until money ran short, and they kept the nuclear deterrent they had opposed. For the sake of Conservative husbandry, they cut back on housing for the people and heaped taxes on the working class. Elected on a programme of educational expansion, they postponed raising the school leaving age. The list is interminable, or nearly. And finally, Mr. Wilson's Cabinet committed themselves to a wage freeze and then wage restraint, and to an attempt to curb trade union power by legislation.

Mr. Worsthorne argues convincingly that the Labour Party as it now exists cannot succeed in socialist objectives because it submits to operating in a capitalist context. It is neither bold enough to be revolutionary nor heart-whole enough
successfully capitalistic. 'So
good. As Mr. Worsthorne

> There were two broad
> approaches: skilful pursuit of
> so as to maximize the "go"
> mize the "stop", which would
> maximization of capitalist co
> home and abroad; or whole
> adoption of a revolutionary
> . . . There can surely be
> doubt that in practice a Labour
> ment is bound to be too
> command enough capitalist
> to do the former, and not
> enough to command enough
> confidence to do the latter.

The difficulties with
thorne's thesis arise when
his elitist hobby-horse,
really no reason to beli
the Duke of Devonshire
leading the Labour Gover
trade union movement,
charismatic spell or in reco
his innate right to gover
have agreed to suspend
their wage claims or agr
law that curbed their righ
lective bargaining.

Mr. Worsthorne, in
understands the springs of
The historic master and pe
lationship is not what
Politics has to do with so
economic forces, and a
pygmy politician who sets
the head of the right forc
right time becomes a man
and achievement, whether
aristocratic Churchill or a
Ernest Bevin. There is
myth of egalitarianism, but
also a Worsthorne myth

Winning the psywar

NGUYEN GIAP:
r of People's War, the Party's
ry Line
d by Georges Boudarel.
Pall Mall. £2.50.

Military Art of People's War
d by Russell Stetler.
Monthly Review Press. £1.90.

M. SWEEZY, LEO HUBER-
and HARRY MAGDOFF:
: The Endless War
Monthly Review Press. £2.40.

SHAPLEN:
from War
1965-1970.
André Deutsch. £3.15.

TER L. COOPER:
Last Crusade
story of U.S. involvement in
from Roosevelt to Nixon.
ord by Averell Harriman.
MacGibbon and Kee. £3.75.

Chinese invented gunpowder
not apply it to warfare until
years set them the example.
thing similar might be said
printing: the Chinese, who
ed it, did not prostitute it;
within a few decades of
berg and Caxton, the printed
Europe had been set to
with no little guile, for prop-
in support of diplomacy and
. Today, learning from
-outlearning Europe, in
under the tutorship of Lenin--
Chinese and Vietnamese, with
Western well-wishers, have
paymasters in psychologi-
fare. In one sense, "psywar"
the same as propaganda---is
ise even: while propaganda
influence belief, psywar
action, and above all
those it is directed at into
ve.

the Indo-China con-
has played as big a part
combat--not by accident,
of that great Leninist,
Chi Minh; combat has been
to psywar in a guerrilla
-diplomatic as much as
-in which territory does not
hands until the peace settle-
The strategy of Vietnamese
psywar has been to
opposition at three levels: at
of the masses; at the level
government the revolution is
throw; and at the level of
foreign helpers of that govern-
Ho Chi Minh's greatest
was achieved, shortly
his death in 1969, at the third
topmost of these levels: the
of America's Truman Doc-
not only in regard to Indo-
but over the whole sweep of
much talked-of "country-
the world", alias the "devel-
areas". These five books to
illuminate how it was
the first three contribute in a
way to the campaign itself, the
show some of its effects.

ioners of psywar address
each in his own language,
upon preconceptions, preju-
and idealizations latent in his
much as fortune-tellers
their predictions from the
those whose money they
pocket. The two texts pub-
the name of defence
Vo Nguyen Giap, like other
Hanoi booklets, are—as Rus-
points out in a foot-
not necessarily literal works
authorship. George-
gives no source for his
of People's War, but it
to be one of the speeches
last year, by each of the
members of the Hanoi Polit-
in celebration of the
anniversary of the party's
and of its quarter-cen-
the war as a fulfilment
destiny under the leader-
party guided infallibly
in situation after
Marxism-Leninism. For
this has entailed
the working class;
mobilization of the nation. Giap does not describe his guerrilla tactics or reveal any detail of his campaigns; the apparent contradiction that the revolutionary dynamic should be class warfare and nationwide solidarity at the same time is not resolved but bludgeoned out of the reader's mind by force of repeated platitude.

Few readers, perhaps, will get far beyond Jean Lacouture's and M. Boudarel's prefaces; it is those which convey the book's real message: that "the adventuristic activities of the CIA" by which the United States has "extended the conflict into the rest of Indochina" are doomed to shrivel before the unanimous popularity of the "Provisional Revolutionary Government" in the South, bent on self-determination vis-a-vis Hanoi. One wonders why Giap himself does not mention these points; instead, he says "we" are going to win by "gaining control over the rural areas" in the South, thanks to doctrinal purity, foreign friends, and "a firmly organized rear base area" in the North. Is it unfairly critical to remark that "firmly organized" smacks of regimentation, rather than of the "voluntarism" M. Boudarel would have us believe is the driving force?—or to suggest that the editor is soliciting a public more eager to believe than to know?

In *The Military Art of People's War* Mr. Stetler has assembled fourteen pieces attributed to Giap—all but two published previously. The texts are condensed and for that reason more readable than the well-known originals (*People's War, People's Army*, for example), although they still administer their dose of mental bludgeoning. Abridgement has permitted expurgation here and there of passages in the originals which today might be damaging, such as "the tracking down of the traitor Tong Doan" included in earlier versions of "Origins of the People's Army" as a cautionary tale about "armed propaganda". Naturally, great pride is taken in Giap's battle of Dien Bien Phu, which was the psywar extinguisher for France's home fires in 1954; but nothing is given away about the Chinese technical contribution to the battle, and the narrative is based largely on Western accounts sympathetic to the party's victory.

Once again, the message of the book is to be found in the introduction: the Vietnamese communists only resorted to arms because they were duped—by "failed negotiations" with, and "broken promises" from, the West—into accepting compromises in 1945, and again at Geneva in 1954, which were repugnant to "national liberation". Yet, far from being duped, Giap himself is quoted as saying of the first of these occasions that the party had merely bided its time because the people did not support its revolutionary policy in sufficient numbers (although, supposedly, it had just won a nationwide general election with 97 per cent of the votes!), and because it had no foreign friends ready to back it up. The book provides one revealing definition: "Our Party's conception of people's war is a new development of the conception of revolutionary violence."

Vietnam: The Endless War reprints eleven editorials from the *Monthly Review* of New York, starting with "What every American needed to know" at the time of Geneva 1954. Their message is that the United States has not merely stood negatively in the way of the Vietnamese revolution, but has conspired positively to make of Vietnam a dependency of her worldwide empire; the inference for the reader is that America can only prove its innocence to its citizens by abandoning the Truman Doctrine, which is morally wrong, doomed to failure, and certainly ultimately to hurt the reader personally, as an American. Among the facts alleged are at least two at variance with the Giap texts: that the northerners (Giap's "we") do not control the revolution in the South and that the guerrillas do not rely on sanctuaries. Other "facts" needing to be known are not only untrue but absurd—such as that Ho Chi Minh was a peasant who "fled to Russia" from persecution in Indo-China, but "was made a professor at a popular Indochinese university established at Canton".

Robert Shaplen's twenty-two periodical reports to the *New Yorker* contrast with *Monthly Review* in that he does not sympathize with the Vietnamese communists. However, they too arise from the American world-view which the psywar campaign has tried most to exploit: namely that the "developing" (or "countryside") world's pangs of subjection to the original sin of European colonialism are the *fons et origo* of the party's might. Whether or not the party has won power because America neglected to foster a nationalist revolution which took hold of the Vietnamese people in 1945 as naturally as it took hold of Americans in 1775—as related in Mr. Shaplen's basic book, *The Lost Revolution*—the Vietnamese communists have had the preconception of it in American minds to build their psywar on. One fact does emerge unquestionably from the impeccably conscientious reporting of the *New Yorker*'s man-in-Saigon: what a bag of worms has been nurtured there by American advice and money, in a Vietnamese political environment no longer "firmly organized" since Kennedy rejected Ngo Dinh Diem.

To Mr. Cooper and his colleagues of the State Department there fell, for many years, the task of conducting their diplomacy on three fronts: those of relations with their Vietnamese friends, of relations with their (self-appointed) Vietnamese enemies, especially at Paris since 1968, and of relations with the international community, especially those members of it whose efforts to mediate engaged Mr. Cooper personally, in attics at Chequers and elsewhere. They had to contend with the realities of the Saigon political environment—firmly-organized or free-for-all—at the same time as the psywar campaign, which flourished once it could be beamed direct at young Americans liable to call-up and their families.

The Lost Crusade is a memoir, and its chief interest lies in its detail, too abundant to be done justice here. The telling is palpably unprevaricating—to the evident surprise of Averell Harriman—not least over the shortcomings of American action in many fields the author was well-placed to know about, such as clumsy bomb-aim over North Vietnam. Mr. Cooper's retrospective view of his quarter-century of disappointments—for, as Mr. Harriman points out, antiwar groups have not been the only American workers for peace—is the converse of Mr. Shaplen's "lost revolution": for Mr. Cooper the driving force has been a crusade started by Roosevelt to redeem the colonially-oppressed Vietnamese for nationalism and democracy—presumably as these have been given to mankind through the United States Declaration of Independence, the plagiarizing of which in 1945 was Ho Chi Minh's opening shot in the psywar campaign.

Mr. Cooper thinks the experience of Vietnam will have taught America to react "less traumatically" in pursuit of a peaceful and orderly world; he does not define what form future Truman Doctrine reactions might take instead. He might have asked whether the United States has learnt from Indochina anything about realpolitik in the "countryside" world; the chances are that American faith that the wicked do not prosper in international affairs, and that "free societies" are less exposed to psywar and subversion than dictatorships will, because American society is founded on it, die very hard.

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S·P·C·K

Up in the palace

JOHN HOLLAND SMITH :
Constantine the Great
359pp. Hamish Hamilton. £3.

This comes rather hard on the heels of Ramsay MacMullen's *Constantine* (reviewed in the *TLS* on April 16, 1970) but that does not necessarily matter, or even, it may be suspected, diminish the sales of either. Where an extremely important and thoroughly enigmatic figure such as the emperor Constantine is concerned, it may even be true to say, as people say about translations, that two versions are four times as useful as one. Provided, of course, that they are good and thoughtful pieces of work, and that their authors have something to say.

All these favourable comments can be made about John Holland Smith's book, at least so far as it goes. Although a less incisive and epigrammatic writer than Mr. MacMullen, many people may find him the more readable of the two, since he possesses a smooth and articulate style which persuasively carries the reader from point to point. As for having something to say, that is not so easy when the somewhat cryptic or at least uneven material has been worked over so often before. But Mr. Smith, as one might expect from his theological training at Oxford and Wells, is at his best over Constantine's involvement with Christianity. Particularly to be recommended is a discussion of the alleged vision before the battle of the Milvian Bridge; so are Chapter Eight, entitled "What is a Catholic Christian?", two chapters on the "sectaries" known as Arian "heretics", and the final chapter which deals with the legends that collected round the name of Constantine. All that can be fairly said against these analyses is that the author perhaps looks at the successive situations a little too much from the point of view of headquarters. It must have been exciting and uplifting to be a fervent heretic, a Donatist or an Arian, since otherwise so many people would not have embraced these faiths, but we are not quite shown where the attraction lay. And it is rather the same with the principal pagan rivals to Christianity, Sun worship and Manichaeanism. Mr. Smith duly tells us something about them, but it is not really made clear why they exercised such a tremendous appeal. In the end Christianity prevailed, but at one time it had looked as if the other religions might prevail instead, and they have to be taken very seriously—especially the Sun cult, which one must not (and Mr. Smith does not) merely equate with the powerful but much more restricted church of Mithras.

There is a brief but unusually comprehensible account of Constantine's administrative, financial, and military reforms. But it is rather queer that they are tucked away in a late chapter merely headed "An Arbitrary Genius?". These changes were of central and fundamental significance, as is well recognized by the now second edition of the *Oxford Classical Dictionary* (1970) in which (*s. v.* Constantine) they are given a prominence lacking in the first edition (1949); the Dictionary's article on Constantinople has also been recast. Mr. Smith's chapter on this now imperial foundation is, as usual, interestingly written, though one would have liked to hear more about why this particular site was chosen and what its specific strategical advantages were.

About the architecture and art of that city, and indeed about Constantinian architecture and art in general, he does not tell us very much. And, indeed, this is probably just as well, to judge from his brief comments on the vanished church of Haghia Irene at Constantinople: "As Constantine had a hand in its building, it was certainly rich, certainly splendid, and almost certainly in barbaric bad taste. . . . Regrettably but predictably, he had developed a liking for designs allowing for masses of gilding." For a much better idea of what the artists were aiming at—and, in the opinion of many critics, successfully achieving—one should instead read Gervase Mathew's *Byzantine Aesthetics*; and a more sympathetic picture of Constantine's awe-inspiring churches will be found in Richard Krautheimer's *Early Christian and Byzantine Architecture*. The fascinating artistic problems of t of Constantine do not enga Smith's attention at all. Ho is perhaps unfair to criticiz what he has not attempted There is a certain type of hi or history book which trie into some detail about cu velopments, but this is no them.

The same conclusion from the few illustration book, which, apart from quate reproductions of traits, are unstimulating some cases, rather mislead tioned (and is it so certain head on the frontispiece and jacket represents Consta all?). Indeed, it must, regret stated that as an exercise higher popularization the b no means attains the higher dards of which the publish capable. For example, there are plans of Cons and its environs and of the of the Milvian Bridge, the of the empire, repeated on b papers, shows hardly any numerous places mentioned book, some of them far too even for an expert reader to to locate without such aid. A again, it is legitimate to pl notes together at the end volume, but in that case the devoted to them needs to ind names as well as the number chapters, since otherwise re to the notes from the text b ingly laborious. But far wor that is the proliferation of mi More than forty proper na misprinted, some of them rep (and, on occasion, there than one erroneous version) particularly culpable beca many of the names are so that all the student to take them over uncritic misprints are duly reproduced index supplemented by a se additional errors, which remi how often an index is a chink armour of the collaboration author and publisher. All have to be dealt with very before the book goes into back edition, as its merits to do.

Down in the fields

K. D. WHITE :
Roman Farming
536pp. Thames and Hudson. £4.50.

H. W. Garrod once, when he reached the *Georgics* in the course of a series of lectures at Oxford on Virgil, drawled: "Speaking for myself, neither the front view of a cow nor the back view of a horse is an object of any particular aesthetic pleasure. With that remark I shall leave the *Georgics* and pass on to the *Aeneid*." What Garrod did with his tongue in his cheek, ancient historians do more culpably. They pay lip-service to the importance of ancient agriculture by the self-evident admission that the whole of the ancient economy was based on agriculture, but with the modern municipal roof-top outlook on the world, they have little understanding even of British agriculture, far less of the agriculture of the Mediterranean basin which, as some of the excellent illustrations in *Roman Farming* show, is in many respects little different today from what it was 2,000 years ago.

Even in Italy, as he stands at the roadside thumbing a lift to Florence or to Pompeii, the modern student's eyes are on the cars, never on what the peasant is doing in the fields behind him. At home he does not go to church on Sundays and listen to readings of the Old Testament, so much of which is still a relevant handbook to Mediterranean agriculture.

In high-level scholarship the same is true. No important book on Roman agriculture has appeared in England since Heitland's *Agricola* published in 1921; so the arrival of Mr. White on the academic scene is to be welcomed on every account. Already his articles in learned periodicals and his book on agricultural instruments in the Roman world have attracted wide attention. He has great experience both of the Mediterranean and of Africa, and there can be little about the science of agriculture, soil-chemistry and the like on which he is not completely expert. He knows—and knows how to evaluate—the ancient literature and he is up to date on the archaeology. No book on ancient agriculture has been written which is one half as scientific. Its illustrations are admirable, and there is a really good index.

A number of accepted commonplaces must now be abandoned. Fallowing was not the rule, with only rare exceptions, as is generally asserted: a lot was known and practised in the way of rotation of crops. Intercultivation of wheat or hay with vines and olives was common in antiquity, as it is today; so that going over to olives did not mean sitting down with no income and waiting fifteen years or so for the trees to come into bearing, as some of us were given to understand when we were taught ancient history at school.

The import of corn from Sicily and Africa had no effect on Roman agriculture except in the vicinity of Rome: "At no time did Italian farmers suffer from the competition of foreign corn." A great deal was known about drainage (since the Etruscan *cuniculi*) and about water-supply, though the absence of technological development meant that, while water was well channelled if it came from a higher level, the no really efficient pumps for it from a lower level. Wh were given milk to drink, it come from a cow. The ox, the and the ass were the really tant draft animals. Tenant was not always bad farm slave labour was not uneco a comparison of the daily ment of an ancient slave modern farm worker.

As Mr. White states, this book on the history of agriculture, and it is a agriculture, not on large-sc ing—whose profits, accord elder Cato, put the profits culture into the shade. So some questions unanswere did all the leather come equip the armies? Caesa in 49 B.C. must have got great many pairs of boots ing from Brindisi to Spai again. This is no criticism White; it is a provocation write another of his splendid

The Annual of the British School at Athens (No. 65. 286pp plates. The British School £8) continues to be the same guished ragbag; this year publication of a handsome century centaur from Eubo extremely important surve historic sites in eastern Roger Howell. One or more specialized articles esoteric as to approach How many years and how money from grants and must it take before casually to "the deity certain origin"?

)perative words

IE SOSEKI:
cat
ted by Katsue Shibata and ari Kai.
£3.25.
nd Darkness
ted by V. H. Viglielmo.
£3.
Owen.

Natsume (1867-1916) or Sōseki, to use the Japanese putting the surname first, is n his own country as one important writers of the tieth century. His work the transition between the of the early Meiji period opening-up of Japan to the d of the modern era which after the First World War. doing much to develop the loquial style and the depiccharacter in the Japanese Sōseki was also well known satirical and whimsical . In this he reflected the inof English writers; he spent ars in Britain before becomturer in English literature at Imperial University. His jor work, *The Tower of London* is based on Harrison Ainsbut it was *I am a cat*, desby the translators as a "novel, which first established his ion when it began to appear in form in 1905. His most novel, *Botchan*, the satirical of the tribulations of an young schoolmaster, was d in the following year. two books, now issued under pices of Unesco, span his s a writer. *I am a cat* is an ent; the unfinished *Light and* s was written in the last few before his death. The former hrough the eyes of a lazy cal cat the life of a pedantic and dyspeptic teacher of English and his complaining wife. *Light and Darkness* revolves round a petty official of a Japanese company who undergoes a minor operation and goes off to a hot spring to recuperate.

Both works show Sōseki's skill in portraying the characters of middle-class Japanese, male and female, of his period. They also convey the atmosphere of Japanese bourgeois life in the early years of this century, before the Japanese economy had taken off. They are, however, long with very little narrative element, and thus they may well seem turgid and long-winded to non-Japanese readers. One difficulty is the real differences between the way of life in Japan at that time and in contemporary Europe. The food, the clothing, the housing and the habits all need to be explained. There are some notes on a few points, but sadly they seem inadequate. This is particularly so with *I am a cat* which contains many references to things Japanese of a literary or historical nature.

Some of the satire in *I am a cat* is biting and humorous. The schoolmaster's poem about "the Japanese spirit" pokes fun at a theme which is usually treated by the Japanese with great reverence. Sōseki is unmerciful in his digs at the pomposity, shallowness and self-righteousness of the scholarly fraternity. The cat's view of the Japanese in the public bath is particularly amusing, though very much in the Japanese tradition.

In *Light and Darkness*, Sōseki develops the medical theme with an eye for sordid and realistic detail which reflects the hypochondriac characteristics of many Japanese whose consumption of patent medicines and interest in maladies rivals that of the French. The hero's trouble is a "fistula", and we are not only taken through the operation, but are also told of the preoperative precautions including the castor oil and the enema! Fortunately the novel is not solely or primarily anatomical, and is most successful in its depiction of the female characters. In particular O-Nobu, the hero's young wife, stands out not only as an egotist but also as utterly different from the accepted Western view of the typical Japanese wife.

Sadly the translations of these two books are very disappointing in comparison with the outstanding work of such translators as Arthur Waley, Ivan Morris, Donald Keene or Eddie Seidensticker, John Bester and others. The styles are wooden and dull; moreover they are frequently just not English. The two Japanese translators of *I am a cat* have clearly tried to follow the original too literally and the results are at times ludicrous or meaningless. This sentence from the translation of the bath-house scene illustrates their failure: "And with no embarrassment at all of their original shameful appearances, they were nonchalantly indulging in pleasant chats." Frankly this is Japlish.

Professor Viglielmo, who has translated *Light and Darkness*, appears also to have his difficulties with the English language. His translation frequently follows the Japanese order of subordinate clauses although in normal English the order is generally reversed. He also seems reluctant to break up overlong Japanese sentences, presumably because he wishes to convey the original style even when this means that they no longer sound like English. One example must suffice:

> Since, when he ventured out into a world governed by wealth and power, he feared being made a fool of by others, he always seemed to be operating out of a sense of caution, for if even a part of his own special province were attacked by such wealth and power, he felt it would be unendurable.

Glossy fairy tale

MAUREEN DUFFY:
Love Child
215pp. Weidenfeld and Nicolson. £1.50.

Maureen Duffy has as narrator and manipulator of her new novel, *Love Child*, a "spiteful, elderly cupid played by a dwarf instead of a child". It is a child, though an androgynous, ageless one, possessed of a photographic memory for the tags of culture. Its parents are seen to be remarkable: the father relied on by governments as prophet and intellectual titan, the mother a blushing sybil, brilliant and lovely, who telephones her views to committees of mysterious purpose willing to accept that her physical presence at meetings would be too much to hope for. An unearthly trio of no fixed address or native tongue, they speed like spectacular birds across the modern world, occasionally alighting to sample real life. This time they spend some months in their villa in the south of Italy, accompanied as usual by a secretary who is required to perform a variety of duties. Ajax, so named by the child—who has read the legends in the original—is the current secretary, and it is as the mother's lover that he is watched, their affair relished and envied and finally destroyed by the child.

Since the novel begins with the words, "It was I who christened my mother's lover", it is tempting to read this as another of those novels which use the particular directness and lack of shame in children, their sometimes iron will and cruelty, to unmask what is base in adult behaviour. But this child is more than that, and inclined too to approve of adult goings-on. The product of wealth and civilization and tolerance, it is fashionably bored and fashionably solitary. Having engineered the end of the mother's affair, the child croons excitedly to itself, "When you have nothing but craft you must create in the round, a happening, a ritual like the great hysterias of the past." It is as the artist, the freak, that the child casts itself. What it has learnt from art has more reality than life itself, yet art must be created from life itself. Using a periscope, a rope ladder, and the cunning pretence of drug addiction, the child manages at least to watch love, to see the masterpiece made flesh, as it peers through a bathroom grating into the hotel bedroom where the mother sports with her lover. The artist is sometimes, of course, more than a freak and a voyeur. What is magical, even divine, in the artist is suggested in a glittering image when the child leaps into the sea to become the inviolate bait for a thousand silver fishes.

Snippets from a symposium, in which the child, its parents and the mother's lover discuss profundities in a fashion reminiscent of those disembodied dialogues in Godard's films—an effect which is heightened by the listening tape-recorder periodically interrupting to have its spool replaced—the snatches of legend, of poetry, and the allusions to paintings: all this seems wearisome, affected and superficial at first. Yet it accumulates to give an impression of the roughage and junk of an artist's mind, both what is discarded and what gives nourishment as model or prototype or explanation.

As usual, Maureen Duffy has created a novel of sparkling details and surfaces, yet its hollowness goes deeper than its theme, deeper than the oblique, even detached view of its material which artistic creation is seen to require. Fairy tales are usually harsh, but this one has lost its edge through glossiness and a too obvious cunning.

xan entanglements

McKINLEY :
he Running Grass
Secker and Warburg. £1.75.

from Texas is ever deliberature. Or at least that is the Georgia McKinley from has managed, in the short, unxian distance of 244 pages, alize the predicament of a family living in the benevootection of Theo, a superative of the gun-'em-down, -the-pieces variety. It is the Delmon Goode, a limp libticing law in New York, who to Dallas to visit his family, ecially his mother Zillah, a geriatric whom Uncle Theo tracted out to a nursing

and Delmon clash at all junctures. He refuses the right to take his mother New York, and he tempts son to stay in Texas with the glamour of hunting. And Delmon's sympathies with the blacks, his active connexions with C.O.R.E. and the N.A.A.C.P., make him totally at odds with the family's oppressively Southern ambiance. The Texas School Book Depository catches his eye more than once; Baby Boy, his cousin's oily son, is a member of an organization which drills on Theo's estate ("we've done some work on gas—just on animals so far") in preparation for the eventuality their intolerance is contriving: to finish off "the civil rightsers and the niggers and the Jews—and the socialist govamunt's encroachments on our fundamental right a property".

The malice of the Dallas setting is powerfully portrayed, although sometimes at the expense of overwriting. And the feelings of Theo's clan as well as those of Delmon are kept in historical and family context by means of skilfully handled flashbacks in the form of Zillah and Delmon's memories. The pull of the land and the search for the better life (from which the book gets its title), the importance of the past struggle to make ends meet, all invade the family's present and dictate their attitudes. An almost comprehensive circuit of ironies is built up in which the tragedy of Delmon's good intentions thwarted by the inflexibilities of Theo and all that he stands for becomes complex and credible. The final irony is Delmon's rejection by the blacks after his efforts to help the nurse who has had a heart attack as a result of his mother's harassment. No solutions are offered; Miss McKinley's sympathies are all with life and with fiction. Her prose, though, is too frequently blighted with Texan rhetoric, an attempt to offer us the big, big language. In fact these panhandle pyrotechnics end in a mannered lyricism. None the less this is a worthy book.

elshly exiled

T JONES :
Eater
arris and Jenkins. £1.75.

n eagerly self-imposed exile on, David James returns to for the funeral of his sister, uicide is already beginning to heard the unspoken, though emotional divisions in her Beyond the sequestered ities of Welsh rural life, is brewing the First World the war David faces is an y one, where the victories ably pyrrhic and the surviv-

's characters inhabit a vengeful world. Jenny's result of her desperation pregnant by a village [illegible] for David, triggers off a chain-reaction of bitter—at times almost sinister—emotional and physical violence, forcing into the open secrets and clandestine hatreds which have for years kept the family in a state of sullen ill-ease. David's brother, Iorweth, is a prime mover in all this. The only person to receive any affection from a coldly withdrawn mother, his aim is to deepen the jealousies in the family and thereby force on them all his vision of retributive justice. David meanwhile, unaware of his own guilt-by-omission, is unwittingly provoking further tragedies by doggedly unearthing the destructive truths at which Iorweth has hinted.

The Sin Eater moves with sombre but ineluctable force and is impressive, certainly, in the way it maintains the sense of malignant power bred by years of mendacity and cruel disillusionment. There are times, though, when the picture of the James family in particular—and, by implication, the Welsh in general—as victims of some kind of grim atavistic backlash looks altogether too melodramatic; dour and depressive, they seem at times doomed not so much by events as by the unrelieved tragedies of their own natures. Similarly, there are places where Mr. Jones, at pains to emphasize the Welshness of it all, lets some regional intonation leak through into his narrative: "Grabs him now does Mrs. James"; "Peaceful it is jogging along in the sun"; "Stands among it does Alun"; and so on, and this conceit (almost comic, finally), together with the evocation of place to match the family's gloomy temperament, makes for an unsettling form of overstatement.

David Beaty
The Temple Tree

"Beaty, ex-pilot, aviation psychologist, and authority on aircraft disasters, mines away in a rich seam of expertise. Foreign atmosphere (Ceylon), mystery (missing gold), romance (pretty stewardess and crash investigator), danger (coolheaded fanatic) and a firm hand on the controls, all guarantee a safe landing"—*The Times* £1.75

Georgia McKinley
Follow the Running Grass

"Novel which never falters in its remarkable build-up to a climax that's short and tragic in its inevitable irony . . . an unforgettable story"—Lucy Cadogan, *New Statesman* £1.75

John Keats
You Might as Well Live

The life and times of Dorothy Parker. "A touching, absorbing and generally tough-minded biography"—
Mordecai Richler, *The Guardian* Second impression £2.75

Theodore Draper
The Rediscovery of Black Nationalism

A study of the development of black nationalism, with assessments of Malcolm X, Eldridge Cleaver and the Black Panthers. "Carefully researched and lucidly argued"—
Colin McGlashan, *New Statesman* £2.10

Secker & Warburg

Grand tour

REINALDO ARENAS :
Hallucinations
Translated by Gordon Brotherston.
286pp. Cape. £2.40.

"Being an Account of the Life and Adventures of Friar Servando Teresa de Mier." The friar has preached a heretical sermon:

> And the Archbishop swallowed his ring when the preacher cast doubt on the apparition of Our Lady of Guadalupe such as the Spanish had reported it, and claimed it had occurred much earlier: at the time of the coming of the Messiah in fact, which undermined all possible justification of the presence of the Spanish in lands that were consequently already Christian before they came.

This, of course, in a Mexico still under Spanish dominion, is a most wicked and seditious insinuation and the intrepid friar becomes the victim of a relentless persecution. He is sentenced to deportation to Spain.

There follows an unending series of improbable dungeons and equally improbable escapes. In his untiring search for freedom and justice, Servando meets only tyranny and corruption, the Church heading the list of the tyrannical and corrupt. He is a Candide whose virtue and idealism are being constantly put to the test. But, in this version, all is for the worst in the worst of all possible worlds. Madrid, for example, is a city in which "vice and loose morals are rife . . . and prostitution is so widespread that at every step one is beset by gangs of hard-talking women". An engaging picture!

Servando tours the gardens of the King, "which cover most of Spain", and is shown the three lands of love: the heterosexual, the homosexual and the lesbian. Is there nothing beyond this suicidal sensuality? Merely the land of "the seekers"; a desolate place. The seekers, absorbed in one fruitless quest or another, are the unhappiest and most despised of the lot. The friar extends his pilgrimage into France. There he is welcomed into the salons of the Enlightenment. Madame de Staël offers herself to him. He declines the pleasure. "It doesn't matter", she replies. "It's just a friendly gesture I make to almost all my guests." He travels to Italy, Portugal and England and the slave states of the American South, planning expeditions with dubious fellow conspirators to liberate Mexico.

Eventually, the Revolution does come and—inevitably—it is betrayed. Imprisoned yet again, he dreams of "the *true* revolution". And, lo and behold, there is a revolution within the Revolution and Servando, crowned with honour and glory, is installed in a gargantuan palace. But, has anything changed? Trapped within his sumptuous mausoleum, he sees the ghosts of the old régime—"ministers, ancient countesses, the cream of the clergy"—materializing out of the woodwork and rich upholstery. "We welcome you, Friar Servando." One set of masters has simply been replaced by another.

Reinaldo Arenas is a young Cuban writer, and *Hallucinations* is his second novel. The book's "disenchanted view of revolution"—as his publishers describe it—has, to date, prevented its publication in Cuba. What emerges is at least as much a disenchanted view of Man himself as of revolution in the abstract. It is a gloomy chronicle of suffering and oppression, both of the body and the spirit, offering neither hope nor consolation. This is not to say the novel does not have its funny moments; it retains throughout the atmosphere of a black comedy. The style (in translation at any rate) is tough and racy and the narrative progresses quickly, if at times a trifle incomprehensibly. Taken at this level, it is an accomplished and bizarrely entertaining piece of work. The trouble is, however, that *Hallucinations* says nothing that is particularly new or exciting. It is merely a restatement of old dilemmas.

A fortunate accessory

JULIEN GREEN :
L'Autre
471pp. Paris: Plon. 30.60fr.

A teenage girl seduced by a young man loses her faith; she recovers it ten years later after another brief contact with him when he himself has become a Christian, and soon after dies by drowning. The story of Julien Green's new novel is intentionally null: an almost empty anecdote to be filled by the fundamental drama of the search for God.

The novel's technique, though essentially traditional, is also quite inventive. The body of the book is Roger's account of his seduction of Karin followed by Karin's account of her conversion. The double "point of view" articulates the work's basic insight, declared in the title: the reader sees what "l'autre" is for Roger and then what "l'autre" is for Karin. For each of them, every person acts ultimately as an intermediary of God or of the devil. They both come to realize that their search for "the other" is really a quest for God, for the supreme Other.

More ingeniously, *L'Autre* is constructed as the investigation of a fait-divers. The first part shows a group of people gathered around the body of a drowned girl on a quayside in Copenhagen. The scene is skilfully composed according to the classic news-in-brief item (as analysed by Roland Barthes), to provoke various anxieties about the meaning of events, and to establish as an antithesis the horror of the event itself: death, and the beauty of the Scandinavian spring. The novel will supply meaning, on the merely factual level by retracing the occurrences leading to Karin's death and by revealing in the final pages that she fell while being pursued by two men, and by intimating that all the apparently random happenings were guided by God towards Karin's salvation.

As a Christian novel, however—and given the reputation of the author—*L'Autre* is in the main unsatisfying. Like so much religious literature, it largely *enacts* a Christian view of human experience rather than *exploring* that experience in the light of Christianity; it starts off knowing too much. The imperious sexuality of Roger and Karin is presented as an obscure appeal for tenderness, for a love beyond the senses, and ultimately for the love of God. Their bewildered solitude is sometimes movingly rendered; but the link between eroticism and a need for "the other" is not demonstrated, and the immemorial theme of the confused cry to God out of despair is repeated rather than renewed. Nor is Karin's conversion entirely convincing, though it is true that conversion, of any kind, is the most difficult thing for a writer to handle. It does come alive at certain moments—as in Karin's sudden command to God to take an interest in her—and also in its persistent irony, seen, for instance, in the partial or even complete inadequacy of those who nevertheless bring her to faith. A further sign of the absence of deep imagination is the obstructive resemblance of Karin, the "criminal" far nearer to God than the "Pharisees" who persecute her, to heroines of Mauriac and others.

Nor does *L'Autre* flow as a sustained religious experience: it has to worry itself into being Christian. This effect arises in part, certainly, from Julien Green's deliberate understating of his theme, afte melodramas of the 1930s. He devised a style which, with variety and occasional poet essentially steady and contained does not write up his heroine, between the senses and the he does not suffuse the novel his own pity, or appeal for from the reader.

But the lack of enthusiasm derives from a lack in the religion. *L'Autre* presents popularly called the "tragic ment of Christianity: the a edgement of sin, despair, dea but it almost excludes the element—of Christianity as of edy: the celebration and the Spring and death, opposed in opening paragraphs, do not be two contrasting but equally postulates about life. The passive characters have little for initiative; life for them "prison" or a "trap"; Karin only find God in the void plunging into death to esc world given over to the flesh. universe of the novel resembles of, say, Zola, with the existen God very nearly as a fort accessory.

Nevertheless, *L'Autre* is viously the work of a disting writer. The character Karin complex study, and what she calls her Danish irony is port with consummate insight and The conversations of the se part are masterly—partic subtle in tracking swift change mood, and in catching rhythms turns of phrase by which sp reveal their own deficiencies, strengths of the novel are, mainly human; they lie in mimesis of human psychology talk.

Part-time utopian

ROBERT ESCARPIT :
Les Somnambidules
219pp. Paris: Flammarion. 16fr.

On a ski holiday in Andorra, a young Walter Mitty called Émile Labenne, an assistant on the do-it-yourself counter in the Galeries Lafayette, lies dreaming of the captivating African student, Léa Tambahé, whom he glimpsed the day before. Concurrently, an invasion of sleep sweeps over the entire world. Each sleeping country dreams that others are asleep, or awake. Overlap and elastic reality reign. The formerly all-powerful mass media (Robert Escarpit runs an institute in Bordeaux devoted to their study) are dethroned. Summit meetings turn into Towers of Babel. President Simpleton of the United States, Scoubidou of France and Edgar Whatnot of Britain lose themselves in the uncontrollable complexities of the new world situation. As a Spanish humorist once said, during the night governments are in total chaos.

This is reminiscent of the split-screen technique, where two existences, each imagining it is the only real one, function simultaneously. As such, it is a picturesque image for each nation's traditional and still flourishing chauvinism. While the new dream-world quickly grows as commercialized as the old prosaic one, only Émile and Léa want the dream, which is the old Platonic dream about the re-fusing of sundered halves, never to end.

The aftermath of the sleep revolution is that government and management become even more of an exclusive and internecine club than ever, whereas children, artists and imaginative beings who had always lived anyway in this newly-revealed pluri-dimensional universe, coexist peacefully. Intellectuals (M. Escarpit carves up those of his colleagues who are obsessed with the pseudo-technological jargon of structuralism) have a competitive dream-world, based on "written papers, orals, *aggregation* and mental circumcision". Their only consolation is to believe that "the dreams of the majority have always been dreamt first by the minority, which is perhaps true of the mind's dreams but certainly not of the body's".

As this metaphysical romp proceeds, the initially controlled don's squib gives way to gratuitous self-ignition. It has pretensions to being a psychedelic dream, but its utopianism is part-time, just as its wit is intermittent, its sentimental ism tempered and its essentially mild.

The sleep revolution, and *Les Somnambidules* itself, interstellar Don Quixote exp the end, sprang from universal dom. Perhaps the best dig book is the wry claim that French, depressingly, had which were identical with reality. Despite its material novel is anti-soporific.

Cool cartography

JURGEN BECKER :
Umgebungen
167pp. Frankfurt: Suhrkamp. DM 12.

At thirty-eight Jürgen Becker has a securely established position among postwar German writers, although the number of his works may seem precariously small in relation to the size of the reputation they have to sustain. But *Umgebungen* is further proof that a literature can be regenerated by a brief series of slim volumes, and those written round the flimsiest subject-matter.

The insight that lies at the heart of Becker's writing seems to be the recognition that the West German reality can be evoked by giving opaque form to the linguistic surface of life. For this purpose he has chosen a form of imaginative prose that does not seem to be a story, and only just qualifies for the epithet "fiction". Snatches of conversation, studies of individual words, sections of works on local history, public relations texts, descriptions of scenes from the narrator's social life, and other material weave in and out of each other, conveying in sum an impression of West German society that has both depth and resonance. Each little section has its enigmatic italic heading, and the fleeting succession of "chapters" embodies the book's dynamic.

The lyrical quality of the is maintained with a masterly from beginning to end. Becker poet of the kitchen and the room, the dishwasher and the sion-set, the gin and tonic and picnic grill, and is at his evoking domestic bliss at a standard of living. But other jects call forth poetic effusions Cologne, map-symbols, the and delights of urban motor legal requirements for the p of parking places, new estates, to name but a few. in everything that is absolut nary, particularly when glossy finish and could be cellophane.

Adroit and subtle as *Umge* is in its component parts, it structure that calls forth unqu admiration. The texture of German society, all styles and atomized and Americanized, traordinarily difficult to repr as dozens of neo-realist have shown with dismal cons But this book does convey porary German life in a elusive manner, which make inquisitive and want to know Becker directs us to some suburban garages, in the mown lawns in villa gar road-building, in guidebook evidently well worth discove

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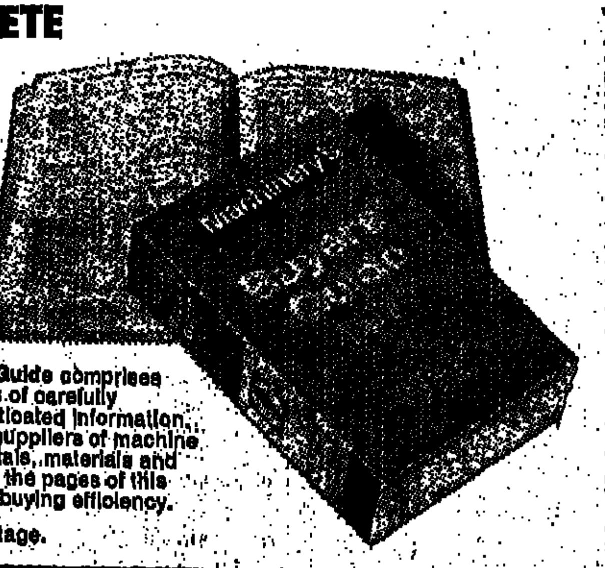

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Early learning and behaviour

BY T. G. R. BOWER

Lecturer in the Department of Psychology, University of Edinburgh

rs of philosophi- debate and ideological argu- have shaped present day on the development of Behaviour, and the that control it have topics too exciting to wait Beneath the froth and of controversy lies one of the ficant problems in biology, lem of whether the mechan- control behaviour grow as processes within a physico- environment, or whether shaped by experience within logical environment. An ponent of the former posi- argue that (given adequate etc.), the limits of an indivi- ledge and intelligence are ment of conception, and altered by manipulations chological environment. An ponent of the latter point would argue the reverse, that and function within that sub- of the environment that is — the psychological ment—control the growth of isms of behaviour. The between the two positions ously immense. They have ferent sociological implica- The one would hold that we provide welfare foods but the other that we should nursery schools as well, a ample though one that raises among the most detached. all this, often buried by moral ent, lies a series of scientific amenable to experimental

of the simplest of these at least on the surface, do with the capacities of the infant. There is no psycho- environment before birth, no or punishment, no conse- of action. For those who maintain an extreme environ- position, the newborn should possess no capa- the capacity to learn, and should not differenti- infants. The learning of the newborn infant have been a major focus of research. Since new behaviours do appear at a great rate throughout infancy, it is important, theoretically, to establish that learning can occur, and could, therefore, account for the emergent behaviours. Eight years ago it seemed that research had failed to demonstrate that the infant of less than six months can learn anything at all. This pessimistic conclusion has been totally overthrown since then to the extent that it has even been suggested that the newborn infant can learn better at that point in his development than he ever will again. This is not a case of new research overthrowing old research. Both sets of findings reflect the limitations of psychology, in a trivial way, and the characteristics of the infant, in a highly significant way.

Psychologists assess learning with very simple paradigms. The basic skill studied is the ability to detect an association between two events. In one standard learning situation an animal, a pigeon, say, strikes a key. Food is then presented for a short period. The two events, the striking of the key and the presentation of food, are causally connected via the experimenter's apparatus. The question at issue is whether or not the animal can detect the connection. If the animal does detect the relationship, and if the animal is hungry, we can expect to see a higher rate of key pecking than will occur if the key-food contingency is not in operation. The higher rate is then evidence that the animal has detected the relationship. Our evidence of learning thus depends on performance which must be motivated. An animal will not peck for food if it is not hungry; this is customarily ensured by starving the animal to 80 per cent of its normal weight.

Any such manipulation of the infant is obviously out of the question. A few studies have used food, supplementary to normal diet, to elicit performance. Many more experimenters have used presentation of visual events to motivate the infant. The motivational problem seems simpler with very young babies. In the first few days of life one can demonstrate learning of a very high order. Neonate infants can learn not one but a pair of response-reward contingencies, requiring two different responses signalled by two different stimuli. Thus a three-day-old infant can learn to turn his head to the left to obtain reward, when a bell sounds, and to the right when a buzzer sounds. He can learn the bell-left, buzzer-right discrimination in a few minutes. Having learned it he can learn to reverse the discrimination if the experimenter reverses the contingencies, to go bell-right, buzzer-left, again very rapidly. The learning displayed here is possibly of a higher order than is ever displayed by an infra-human. Why then is it so difficult to demonstrate learning in somewhat older infants?

One cannot accept the proposal that learning ability declines so rapidly between birth and four months. The answer must lie in the motivational structure of the tasks. Experimenters have vied with one another to produce exciting events. Infants' responses, in various laboratories, have produced a film of eskimos, a human jack-in-the-box, rotation of a windmill, a Times Square display of flashing lights, none of which proved to be particularly effective. Indeed, analysis of successful studies have shown that the nature of the reward presentation hardly affects performance. A simple flashing light has been as effective as the more complex events described above. If the motivational effect is independent of the nature of the presentation, it follows that something else must be the source of the motivation.

The something else, it now seems, is problem solving for its own sake. Infants perform in learning situations for no other reward than that they obtain from solving the problem posed by the situation. Attribution to infants of a thirst for learning for its own sake may seem an implausible step. However, there are a number of experiments which make the conclusion seem to be inescapable.

Consider an infant in a situation in which he can turn on a light by turning his head to the left. Most infants of two to three months will succeed in turning on the light several times within a quite short time. Their rate of leftward head-turning will then drop back to a level which is insufficient to serve as a criterion of learning. The rate will not pick up again so long as the left-turn-light-on contingency is operative. Suppose the experimenter changes the contingency to right-turn-light-on. Sooner or later the infant will make a left turn and the light will not go on. We then see a burst of leftward head turns, followed by detection of the right-turn-light-on contingency, as shown by a brief, high rate of right head turns, which will then subside. That rate, too, will stay low if the contingency is unchanged.

If, however, the contingency is changed again to a left turn followed by right turn to switch the light on, the rate of right-turning will increase after the first trial on which the light does not go on, the rate of left-turning will also increase, and finally the infant will produce a left turn followed by a right turn and switch the light on. After a brief burst of left-rights the rate will subside, until the contingency is changed. The change produces a burst of activity, ending when the correct combination of movements is discovered. Infants have been brought to master quite complex series of movements, such as right-right-left-left, in such procedures. Every time the contingency is changed the activity rate of the infant goes up.

Examination of the behaviour shows that the activity is not random. The infant seems to be testing hypotheses, trying out sequences of movement, to discover

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which one operates at the moment When the correct sequence is discovered, it is tested a few times, and then dropped. Behaviour, hypothesis-testing, only picks up again when the previous sequence is shown to be inadequate. It is quite obvious from the behaviour of the infants that the light source is not the motivating factor. While hypothesis-testing is going on, even after the first success, the light is barely looked at. A scant glance, to check whether it is on or not, is all it receives. After the confirmatory glance, the infant may manifest behavioural signs of pleasure and joy, but these are displayed with no attention to the light, which is obviously not their cause. It thus seems that the pleasures of problem-solving are sufficient to motivate behavioural and mental activity in these young infants. If a learning situation is interactive, the infant will demonstrate that he can learn; if it does not, and his only motive is the prospect of reward, then the infant will not demonstrate that he can learn.

The infant's perception of space

Perhaps the most shocking thing about results like these is the remarkable capacity displayed by the infant subjects. Problem-solving, hypothesis-testing, learning for its own sake, are not phrases that we associate with infants. Indeed, experiments like these, which were originally undertaken to prove that infants begin life with few capacities, have in fact shown the reverse; learning of such a high order is only possible if other complex capacities are already present. The learning described above depends on the prior articulation of the perceptual world, a definition and identification of movements, plus some device for temporal segmentation which results in appropriate cause-effect sequences being grouped together.

All of these preconditions for learning have been extensively studied in their own right, and all have yielded results demonstrating considerable capacity in the young infant. In the area of perceptual functioning there has been a widespread belief that infants "don't see", a belief whose disappearance is shown by the increasing number of toys and devices designed to enliven the perceptual world of the infant. The scientific work which has produced this change has been bedevilled by the inaccessibility of the perceptual world of infants. The medium of language is simply not available.

Fortunately, there are other behaviours which can be used to index perception. For example, the third dimension of space, projected to the eye as a point, as Berkeley (erroneously) said, has been studied by means of an ingenious device known as the visual cliff. The visual cliff consists of two surfaces at different distances, such as a table top and the floor, with a continuous sheet of glass resting on one and projecting over the other, supported in such a way as to ensure that an infant can be placed on any part of it without falling through. The section on the table top has a visible surface directly underneath it; it is referred to as the shallow side. The section over the floor has no visible surface except the floor some feet below; it is referred to as the deep side. In the original experiment the infants were placed on a plank over the join between the two surfaces. Attempts were made to entice them on to the shallow side and the deep side.

The infants, old enough to crawl, unanimously rejected the deep side and chose to crawl on to the shallow side. Their choice indicates that they differentiate deep and shallow, and fear the deep side, proof, surely, of an ability to perceive the third dimension. The infants in that experiment were rather old for many very strong conclusions to be drawn from it. However, it has recently been repeated with infants of about a month old. These infants, of course, cannot crawl. The experimenters simply placed the infant on the shallow side or the deep side and observed his reactions. There were no specific reactions to the shallow side. Placement on the deep side, by contrast, elicited fear responses, shown by such gross behaviour as crying, and also by such autonomic changes as increased heart rate and shallow breathing. The fear was specific to the deep side, again indicating perception of the third dimension.

In other experiments infants as young as one week have shown an ability to perceive position in the third dimension. The technique used was to move an object towards the baby and observe his reactions. If fully awake—a rare event at this age—a one week old infant will perform a defensive reaction, which terminates with his hands interposed between the object and his face. This reaction only occurs when the object approaches the infant. It does not occur when the object recedes. Furthermore, the behaviour only begins after the object has reached a certain position, regardless of the size of the object. Thus a 10cm. object will begin to elicit the defensive response when it is 30cm. away, as will a 30cm. object. This is important since a 30cm. object projects the same image on the retina of the infant's eye as a 10cm. object at 30cm. distance when it is at a distance of 90cm. Despite this retinal identity it is only the near-object which elicits the defensive behaviour. This shows that the infants are not responding to retinal variables, but to objects and their properties in the external world. Thus even at a week old the infant is operating in a world of objects, rather than a world of pictures.

One might think that a demonstration that an ability is present at one week would suffice to show that the capacity had developed without benefit of learning. This is my own view. However, it would not satisfy some research workers, as is shown by the history of the study of auditory localization in infants. It was shown some years ago that infants on the second day of life would turn to look at a sound source. As soon as the sound began, they would turn to look at the sound source, ignoring other visible targets. This was taken as evidence of an ability to locate sounds and also of some coordination between vision and audition. Since the infants were less than forty-eight hours old, it was suggested that the ability must have developed without learning. This suggestion was attacked by some. The investigator repeated his experiments with a subject approximately two minutes old, obtaining the same results as before!

Coordination of the senses

One of the interesting aspects of the method used to test for auditory localization is that it provides evidence for unity of the senses—the infant *looks* at the sound source. The sensory inter-coordination suggested by that has been studied more precisely in a series of recent experiments. In one of these, the infant sits facing his mother. His mother talks to him, saying anything that comes into her head. The infant and his mother are separated by a soundproof sheet of glass. The infant hears his mother through a stereo speaker system, which can be adjusted so that her voice appears to come from her mouth, as it would normally. The balance can also be changed, to make the sound source appear to lie in the empty air to her right or left, a highly abnormal situation. When infants of about three weeks old are presented with the normal case they interact quite happily. The abnormal situation, by contrast, produces crying, double orientations to the visible mouth and the heard sound source, plus many other behaviours indicating startle and upset. This is evidence that by the age of three weeks an infant knows that voices come from mouths, that he locates visible mouths and heard voices in the same perceptual space, and can therefore detect their distinction. Although the study of this behaviour has not been pushed back to two minutes old, it too seems unlikely to be the result of learning. The reasons for this are too complex to be dealt with fully here. One is the fixity of the response. It does not seem to be readily modifiable in the way that truly learned connexions are.

Inter-coordination of vision and touch has also been studied in infants in the first weeks of life. If such infants touch a seen object, thereby receiving tactile stimulation along with visual stimulation, they show no surprise or startle. If, however, they are presented with a visible object which is intangible, (produced by stereo projection as in the old 3-D movies) and their seen hand contacts the seen object, with no consequent tactile sensation, quite massive startle is displayed. The younger infants usually howl. Older infants will stare at their hands, in seeming disbelief, rub their hands together—as if to make sure they are operating properly—before trying to touch the intangible object again, and generally act as if they were extremely surprised. This is, of course, a version of the experiment suggested by Mr. Molyneux to Locke, 200 years ago. The data do not support the conclusions of those philosophers. The world of vision and the world of touch are perfectly coordinated in these young infants, and most certainly not as a result of learning.

The conclusion of these and numerous other studies is that many capacities are present at birth or in a period so close to birth that they could not be learnt, particularly since the capacities are a prerequisite for the only sort of learning so far demonstrated. Space perception, movement perception, the perception of many object properties, all develop during fetal life independent of learning or a psychological environment in any sense.

Where the smile comes from

What of the many other capacities that show up after birth? What is the provenance of the many milestones in development whose occurrence is so eagerly awaited by parents? The most looked for, and one of the most studied, is the smiling response. Around six weeks of age the normal infant will smile at a face, or other visual stimuli which resemble faces. The smile is a highly significant social act. Volumes have been written on its importance. Where does the smile come from? Needless to say, some have argued that the smile is "learnt".

One barbarous experiment was carried out in the U.S.A. In it two infants were raised with no or very little social contact with adults and therefore no opportunity to learn to smile. Fortunately the experiment was a complete failure. Smiling developed quite normally. The failure of the experiment did not still the arguments. Recently, Czech scientists have taken advantage of a natural experiment. Smiling appears in the normal infant at six weeks. That is to say, it appears forty-six weeks after conception.

Infants are normally born forty weeks after conception. Some are born only thirty weeks after conception. Premature infants and overdue infants thus provide experimental groups whose development can be compared with that of normal infants. Does the smiling response appear at a conceptual age of forty-six weeks, regardless of when birth occurred, or does it appear six weeks after birth, regardless of conceptual age at birth? The data support the importance of conceptual age, implying that internal growth processes are of far more importance than externally induced processes.

Similar "experiments" with other behaviours have shown that other landmark behaviours, such as reaching, as well as more subtle changes in quality and range of attention, are very largely determined by internal growth processes, dating from conception, and are not altered by late or early birth. These conclusions are reinforced by studies of full term infants in enriched environments. Various groups of infants in institutions in different parts of the world have been provided with surroundings, rich in artifacts, to look at, listen to, and touch. These enriching experiences do not accelerate development in the early months of life, again supporting the hypothesis that early development is controlled by intrinsically regulated growth processes, rather than by externally induced changes.

Perhaps the most striking demonstrations of the unimportance of external events in early development come from studies of infants handicapped by the loss of a sensory modality. The study of blind infants has revealed that the early stages of visually guided reaching do not require visual input for their initiation. Somewhere around twelve weeks the normal infant begins to look at his hands. He will stare at them, track them from side to side and to and fro. This behaviour is a necessary part of the development of visually guided reaching, a process which starts well before birth. It seems on the surface to require an environment. This is not so. Blind infants go through exactly the same stage of development. They "watch" their hands, although they have nothing to watch them with, tracking them with all the attention and precision shown by a sighted infant. Hand-regard, a behaviour which so obviously seems to depend on external factors that its onset has been used as a measure of environmental efficacy, is thus shown to depend on intrinsic regulation for its initiation.

The vocal behaviour of deaf infants is another case in point. Infant babbling is a necessary precursor of childhood speech. There are two periods of babbling. The date of onset of the first of these, around six months, can be used to predict the onset of language itself, in normal infants. Babbling would seem on the surface to reflect environmental effects, to require experience for its onset and maintenance. This is not true of the first phase of babbling. Deaf infants go through the first phase of babbling just as normal infants do. It thus requires no experience of language for its onset nor for its maintenance during the first stage. Thus even at the late age of six months some activities develop entirely under intrinsic regulation.

The later stages of development do, of course, require an environment. At some point, differing from behaviour to behaviour, the intrinsically regulated behaviour begins to incorporate environmental artefacts and to be changed by them. The process is not a passive shaping. Intrinsic behaviours seize on environmental features and are modified to adapt to these features. In the case of babbling the infant drops some of the sounds he can make and concentrates on those made by his parents. In the case of reaching, the infant begins to adapt his reaches to the properties of the objects he desires, essentially using his hand as the first tool. If the requisite environmental feature is not present, the intrinsically regulated behaviour seems to decay. The blind infant loses the ability to look at his hands, indeed loses control of his eye movements completely. The deaf infant stops babbling and does not begin again. If the requisite environmental feature is present, the behaviour changes, steps up into a new stage of functioning.

Moving between two rules

There is a progression of such stages in development, with steps from one stage to the next, each requiring some trigger. The data on these triggers are at the moment extremely scanty. They are certainly not simple environmental features or affordances. Intrinsic developmental processes furnish the infant with mechanisms to control behaviour, a set of rules regulating his responses to situations. The mechanisms of space-perception, as described above, embody just such a set of rules. The rules, however, are inadequate. Sooner or later the ment will provide a situa which the rules do not apply. breakdown generates devel to a new stage, characterized by rules which will in turn be sho be inadequate.

Development to a new, mo elusive stage will then begi process of development is be cribed as hypothesis testing infant or child tries out new and tests their consequences life situations, just as the very infant did in the simple situations described before.

To take an example, inf less than eighteen months of not have a fully adequate rules to guide their behavio wards objects in space. They particular difficulty with objects are out of sight. For a six mon "esse est percipi" seems to be prepotent rule. If an obje hidden, a six-month-old infant not search for it even though perform the behaviours invol search. This rule goes and i placed by a rule which say invisible object will be whe usually is". An infant followi rule will, if allowed to fin object in the same place tw three times, search for the obj that place even after he has se placed somewhere else. That too is unsuccessful. It is replac a rule which says "an inv object will be at or near the where it was last seen" (also un cessful).

While infants are moving betw these two rules, they may be served to go through routine taking a toy from a toybox place where it usually is) and ing it somewhere else (the where it was last seen); they then rush back to the toybox, in carefully, and then rush ba the place last seen and sea object. This behaviour is re many times. If the toy is from the place last seen by unseen agent, thus causing favoured hypothesis to fail, observes behaviour reminiscent scientist whose favourite hyp has been infirmed. After trums, a new set of tests w ably begin.

The persistence of development

Development of this sort on a very minimal enviro affordance, certainly nothi cific. Does it depend on development? Development later stages is very plastic be accelerated well beyond the of intrinsic variation by intro biased environments, designe allow the child to discover inadequacy of his current sooner than he might otherw That would tend to argue the role of intrinsic change pro as determining factors in later opment. On the other hand, opment does occur in very un ising environments.

Consider the case of limbl idomide infants. Their envir cannot contain graspable since the infants have no hands, nor can it contain beh spaces, since the infants move themselves. Their phy vironment is made up of obj events in the same way as normal infant. Their psycho environment, the ways in wh physical environment can them, must be totally differen pite this, tests of cognitive done at the age of two years no deficit at all. Somehow children had picked up eno formation to formulate the of rules used by normal chil that age. It is clear that rule tion and rule testing will pro very minimal environments the drive to generate and te may be the factor which diff ates human development fro of other animals, ensuring flexibility and creativity in tion to a wide range of ments.

What a fall was there!

ERT LACEY:
t Earl of Essex
Elizabethan Icarus.
p. Weidenfeld and Nicolson.

relationship of the elderly Elizabeth and the young Earl has a perennial fascination. motives are clear enough. ebted and ambitious young had every reason to make agreeable to an aging maiden o controlled access to the d glory to which he felt ntitled, and who was, into rgain, his major creditor. h's common sense and prudto say nothing of the more tical substantial barriers sug by Lytton Strachey) fortun ruled out the possibility of his alled upon for anything more n extravagant flirtation.

problem in his case is why he presume so far on the rela as to insult the Queen to face, blatantly disobey her when commanding her troops, ally attempt to regain favour political power by raising a re of military adventurers, Lon citizens, and Welsh tenants and on. Was it merely the of a spoiled and rather stupid man or is there a more exotic ation? Even more intriguing question of what the Essex reveals about the Queen. the extraordinary and fatal in she showed towards Essex mption of a long-repressed for affection? Or was she, gaged in some cynical and manoeuvre, her personality by long years of self-disci which made such human emo impossible?

historians the Essex affair is a matter of human per important though that is, the Queen's case. The Essex rebellion has got itself somewhat incongruously mixed up with the controversy about the social origins of the Civil War. In some sense it was the last manifestation of baronial power-politics, an anachronistic attempt to apply fifteenth-century methods in a politically more sophisticated society. From another angle, Essex's attempt to weld together an alliance of discontented aristocrats and gentlemen with the City of London on a patriotic, anti-Spanish and, to a certain extent, Puritan platform, foreshadows the 1640s.

Oddly enough, no academic historian has attempted a study of the revolt, though a good deal of work has been done on various aspects of it, generally in the course of other studies. Archbishop David Mathew, Professor Dodds, and Mr. H. A. Lloyd have studied Essex's organization of a party in Wales. Sir John Neale and Professor Joel Hurstfield have clarified the course of patronage and politics at court. Dr. Patrick Collinson and others have emphasized the dependence of Puritans on aristocratic patronage, and equally the use to an aristocrat of Puritan support, and so put Essex's relations with the Godly in perspective. Finally, Lawrence Stone's massive investigation of the aristocracy has uncovered the parlous finances of the noblemen and many of the gentlemen involved in the revolt. One vital part of the jigsaw is missing: the politics of Elizabethan London. It is this, perhaps, which has deterred the academic historian.

Robert Lacey is a journalist. He has produced an able book, but one which highlights the difference between the academic and the journalistic approach, even when the journalist is an obviously intelligent man, well-read in the subject, and with a degree in history. The academic might envy the confidence with which Mr. Lacey passes from ascertainable fact to mere supposition, his readiness to write sentences like "his deep soft eyes would flare at the mention of battlefields and feats of arms".

More important, Mr. Lacey's comments often betray an imperfect understanding of Elizabethan society. To be surprised that Essex could "read and write fluent English—no mean achievement for a Welshman" can only result from a fundamental misunderstanding of the background of the Devereux family. Nor would the academic consider the prevention of a duel between Essex and Ralegh a "trivial personal concern" of the Queen's. He would tediously demand evidence that Abdy Ashton was "po-faced" as well as "Puritan". He might, also, wonder whether Henry VIII, if he had syphilis at all, was really likely to have caught it in a French brothel. He would know, one hopes, that neither in Shakespeare nor in history did "Glendower's fiery Welsh forces" play any part in deposing Richard II.

In addition to these faults of background, Mr. Lacey unfortunately seems to misunderstand the normal convention for the citation of authorities, and thereby unwittingly misleads the reader. For instance, his discussion of the financial situation of the peers among the Essex conspirators is based almost entirely on the relevant pages of Lawrence Stone's *The Crisis of the Aristocracy, 1558-1641*. The trouble is that Mr. Lacey has not mentioned Professor Stone in the relevant footnotes, but cites instead what looks to be an impressive-looking collection of original authorities; impressive-looking, that is, until one realizes that they are in fact, down to page numbers, taken direct from Professor Stone, and comprise a selection of the more accessible of his authorities. The point here is not that Mr. Lacey should have indulged in supererogatory research of his own; merely, that he would have done better to cite Professor Stone as his authority, or at least indicated that he owes his references to him.

Having disposed of the peers, he mentions briefly the finances of nine gentlemen. All the facts in this case come from Professor Stone, but neither he nor any other authority is there cited. Quite clearly, this is a matter of having misunderstood the conventions. Mr. Lacey's preface specifically disclaims drawing on any "documents that have not been published or studied in recent years". But the result is unfortunate, and shows, perhaps, that the training undergone by the research student is not entirely the waste of time it often appears to be.

It is because this book is stimulating and intelligent, because the author has made a genuine and largely successful attempt to relate Essex to his background, because he has not allowed himself to be taken in by the romantic image which the Elizabethan court created about itself, that these pedantic points are worth making. The approach is, indeed, notably cool. Mr. Lacey's view of Essex is largely convincing, though some might doubt if it is necessary to ascribe his erratic behaviour to the effect of tertiary syphilis. Elizabeth he sees as experiencing "towards Essex the man nothing more than a calculated, wilful infatuation whose main constituent was fear of old age". This is surely to oversimplify a complex and ultimately tragic personality.

Unspecific revolution

CONRAD RUSSELL:
The Crisis of Parliaments
English History, 1500-1660.
434pp. Oxford University Press. £3 (paperback, £1.50).

The cynic may wonder what remains to be said about English political history in the sixteenth and seventeenth centuries. He may suspect, too, that the preference of publishers for books in series, as against individual monographs, plays an excessive part in what is commissioned and written. J. M. Roberts, the general editor, refers darkly in his preface to this volume in "The Short Oxford History of the Modern World" to "the forbidding demands of examiners and makers of syllabuses", and he goes on: "This series is meant to be of practical value to the students and teachers who have to meet them." Granted some apparent uncertainty of aim—as between sixth-form teachers, A-level and entrance scholarship candidates, first and second-year undergraduates and the intelligent general reader—Conrad Russell has triumphantly overcome such doubts and has launched this series with a notable contribution to Tudor and Stuart history.

The Crisis of Parliaments is of much greater interest than the conventional textbook. Its construction is a judicious mixture of narrative and analysis; Mr. Russell writes clearly, sometimes indeed elegantly, and reasons cogently, with very seldom a shoddy sentence or a slipshod thought. Inevitably a young historian covering so large a subject is more at home in some parts of it than others. To say that the author's mastery is most evident in his handling of constitutional and religious issues is not to decry his valuable treatment of social and cultural aspects.

By contrast, the more strictly economic history here is at best adequate. While Scotland and the colonies get at least a bare justice done them, and foreign relations are fully and effectively discussed, Ireland (and its influence on English history from Elizabeth I to Oliver Cromwell) is relatively neglected. The roles of the old and the new English settlers there and the genesis of the Ulster plantation are scarcely explained at all. The book tails off a little after the Civil War, suggesting that the author was running out of space; thus the reader is unfortunately denied any concluding survey, to assess the effects—if any—of the upheavals from 1640 to 1660 on the general life of the country. As a whole, the book is more original in its interpretations of the sixteenth than of the seventeenth century. It is almost the first advanced survey whose author has had time to assimilate J. J. Scarisbrick's treatment of Henry VIII and to strike some balance between his and G. R. Elton's contrasting interpretations of the years 1529 to 1540.

Mr. Russell's general view of the period is crisply summarized in his introductory section to the first chapter. He argues for important changes in the life of the country over the century and a half with which he is concerned but not for any specific kind of revolution, be it religious, governmental, or bourgeois-capitalist. The fortunes and attitudes of the landed gentry are felicitously illustrated from research on the Pym family. Except as moneylenders to successive rulers, the role of the mercantile elite, as of the educated townsman at large, is perhaps a shade underplayed. The masses receive sympathetic but not sentimental treatment. Occasionally there is just the faintest hint of Whig patricianism; but it is a refreshing change—and not a mere affectation of family pietas—to find J. S. Mill quoted instead of Karl Marx. A few slips, misjudgments and dubious assertions might with advantage be eliminated from future editions; the author's enjoyment of a good story and an apt example has led to some uneconomical repetitions. But save only its shortcomings on Ireland this is a remarkable synthesis, and an extremely accomplished piece of writing. Happy the student—be he sixth-former or undergraduate—whose mentor is Mr. Russell; while *The Crisis of Parliaments* may be strongly recommended as a sustaining *vade mecum* alike to the serious general reader and to the professional teacher of history.

Between regimes

ROGER L. WILLIAMS:
The French Revolution of 1870-1871
232pp. Weidenfeld and Nicolson. £2.25 (paperback, £1.05).

As we receive the full blast of Commune commemoration, it is appropriate to look at this short book (which was the first to appear in a series entitled "Revolutions in the Modern World") which surveys the period from the declining years of the Second Empire to the establishment of the "conservative" Republic. Some forty pages are devoted to the Commune. The book does not begin well. "Revolutionaries", we are told, "no matter how enlightened, misguided, or devious posterity may judge them, are no more single-minded creatures than other men. Human motives are indeed complex."

We would be mistaken to be put off by such sententious remarks. In fact, Professor Williams has written a book which many will find useful (and not the least useful part is the discursive bibliographical essay). It is perhaps particularly fitting that we should have a book which puts the Commune into the perspective of its preceding and succeeding years. The trouble with centenaries is that it is too easy to isolate events. This year we are with the Commune and we have forgotten the Franco-Prussian war (which we did last year) and we tend to forget the conservative and not necessarily violent Third Republic (which we shall never celebrate).

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Man, poet and Pre-Raphaelite painter

VIRGINIA SURTEES:
The Paintings and Drawings of Dante Gabriel Rossetti (1828-1882)
Volume I: Text 267pp.
Volume II: Plates. 504 plates.
Clarendon Press: Oxford University Press £20 the set.

There used to be some rare Firsts where the candidate found himself submitted to no interrogation at his viva voce examination but greeted by examiners rising to their feet for a congratulatory handshake—none to abide his question, he was free. Some sort of such approbation should welcome this really superb production: in P.-R. B. parlance, a stunner. It is a model of research and of enlightenment: illuminating obscure places, for it combines scholarship with a sensitive approach so that not only are the required data given (measurements, dates, provenance, and prices at auction) but also literary allusions which build up an image of Rossetti, the man and the poet as well as the painter. In no one is this more essential to understanding, for the three facets were inextricably mixed in his personality—and his work.

The production of the volumes is admirable: having text and illustrations (beautifully placed on the pages) in separate volumes makes for handy reference both for students and for any general readers. Comparison with Marillier's great memorial volume of 1899 is inevitable: it is not his fault that many pictures have changed hands (and prices) since that date, and his judgments seldom need to be revised; but his extremely complicated index is replaced here by two much easier to use, although even so the publishers might have run to providing the plate numbers of Volume Two as well as the entries of Volume One.

The project was first suggested to Mrs. Surtees by the late Sir Sydney Cockerell and with Sir Sydney to suggest was to command. His confidence in her was not misplaced, for her search for pictures has been indefatigable: in Rossetti's lines,

> in what fond flights
> How many ways and days . . .

She has made many discoveries and covered them faultlessly. Fond flights across the Atlantic may be taken for granted (where are Rossettis in better condition and better hung than in the Bancroft Collection at Wilmington, Delaware?), but she even tracked down to Budapest one of the sketches for a head in "Mary Magdalene at the door of Simon the Pharisee". She has also succeeded in adding a couple to the preliminary sketches for "La Pia" already exhaustively listed in the booklet by Professor W. D. Paden reprinted from the *Kansas Register*. More difficult, she has found and in most cases been allowed to reproduce work from collections of unsuspected private owners. For instance, the original water-colour (1851) of "Beatrice meeting Dante at a Marriage Feast denies him her Salutation", generally reproduced from the later (1855) version at the Ashmolean, is given here and enables the student to see what alterations were later made at Ruskin's behest.

Mrs. Surtees also contributes some unpublished material from letters, notably those of Miss Ellen Heaton of Leeds, and personal correspondence over many years with Mrs. Troxell of New Haven (whose unique collection is now at Princeton) and with the niece of "Aunt Christina" and "Uncle Gabriel"—Mrs. Rossetti Angeli, beloved of all students of the period, whose death in 1969 she records in a special note.

For an example of Mrs. Surtees's method, we can follow in detail the picture usually known as "Dante drawing an Angel", which she is obliging enough to cross-reference in the index to its correct title, "The First Anniversary of the Death of Beatrice". The earliest pen-and-ink drawing of the subject (reproduced on the back of the jacket) is now at Birmingham and the water-colour, with the figures quite differently posed, at the Ashmolean: two preliminary sketches are listed. The first design may have been the sketch that was exchanged with Millais for his drawing, "Two lovers: the Woman's dress caught by the thorns of a Rose Bush", based on a poem by Woolner—all very in-P.-R.B. and with one of those titles that Rossetti made fun of in "Gil Blas about to assume an air of unconcern while waiting on the robbers in their cave". Mrs. Surtees draws attention to Rossetti's *favourite treatment of light pouring into a dark room from outside.* Here we see "the hot sunshine beating down upon the bridge spanning the river Arno . . . in direct contrast to the shadowed interior". She gives the quotation from Dante that inspired the subject and does not forget an allusion to "the persons of importance" who interrupt the artist in Browning's "One Word More". Against Dante's knee on the floor lies one of the medieval musical instruments that he liked to collect and to draw even if he did not want to play or listen to them. In "The Blue Bower" we have Fanny Cornforth to illustrate a damsel with a dulcimer but most of the others, weird and wonderful, are unnamed and might provide a minor thesis for someone who could identify them.

In "The First Anniversary" one of Rossetti's favourite props makes a first appearance in the entrance hall: the Dutch cistern (not a ewer and basin) made of copper with brass ornamentation that occurs again in "Lucrezia Borgia" and "La Bella Mano". It was supposed to hang on a wall and the towel draped beside it hides the fact that Rossetti somehow supported it free standing. In "La Bella Mano" is also introduced the convex mirror that used to hang in Cheyne Walk where Treffry Dunn painted in it a grate with roaring fire and brass plates ranged on shelves above and a glimpse of a rich bed-hanging. Rossetti took them all over here, though they could not possibly have been reflected from behind the model's head.

"Found", of course, the picture on which Rossetti worked all his life, has to be studied in detail: eighteen preliminary sketches for it are recorded here, together with the larger but always unfinished paintings. The models for the farmer's head evidently varied: one, William Michael Rossetti, we know, but who are the others? They show how good Rossetti's portraits from life could be and how underrated they often are. What could be more exquisite than the head of the model for the child angel in "The Blessed Damosel" (now at the Fogg) or the coloured chalks of May and Jenny Morris still hanging at Kelmscott where they were drawn in 1871, at a time when critics were writing off his failing powers?

Of slighter sketches is it that the knight in "Geneviève drawn by Millais, or is it at that time. August, 1848, the day period of the P.-R.B. ideal of identical brotherh so nearly attained? And in " Helen" could Rossetti have imposed the figure of the woman on to a sketch b Siddal, for there exists one very like it with the little looking back from the w report on the approach of galloping to beg for the l faithless lover whose wax is dissolving in the fire.

Far from the proffered han in silent tribute that says more words, the temptation is to co indefinitely with comment a cussion, but these must be left reader to pursue, each for h We can only finish here by back to the beginning: that k front of the jacket where, by a liant inspiration, instead of a too-frequently-used portra Rossetti, there is reproduced known sketch called "Writing Sand". The girl is Lizzie Sidd the background borrowed fro Boyce ("2 sketches on the c Babbacombe"). It shows Rossetti could indicate mo when he set his mind to it for likely, threw it off by chan here are no lolling *damès* nor static sensual beauties a man and a woman ha hand breasting the sea. The cleansing tide will away whatever words he is out on the sand with his

> Θάλασσα κλύζει πάντα τ'
> κακά

—but the lovers will go on off the edge of the page towards a horizon "where Sea, Man are all in each".

Anyone who wants to und Rossetti and his art should of all the profiles and the histories that have been written him and get this Catalogue. The price is high, but volumes are worth their every decimal of it.

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Hush, hush, whisper who dares

ROBERT MELVILLE:
Henry Moore
Sculpture and Drawings 1921-1969.
368pp. Thames and Hudson. £8.40.

> Don't do any more, 'Enry Moore
> You'll come right through the floor,
> 'Enry Moore
> 'Ammer, ammer, ammer a'am a
> scoolpter. . . .

This fragment of an old song which was heard in the neighbourhood of Fitzroy Square and the Euston Road about the year 1937 has not, it would appear, been previously recorded. It seems an odd omission, for the stream of books on Henry Moore continues and has for long continued in full spate, and it is hard to suppose that there is any other information concerning him which has not found its way into print. And yet, on reflection, perhaps it is not so astonishing, for there is a kind of flippancy, a shade of mockery, in this absurd refrain which might be deemed irreverent; and whatever else the apologists of Henry Moore may be they are not irreverent. For Moore, much one imagines to his surprise, has become a sort of religion and Robert Melville's volume may be thought of as a kind of missal for a large and prosperous sect.

It should at once be said that the worshipper will get his money's worth; here are thirty-two colour illustrations, most of them admirable in hue and all of them clear; here too are 814 excellent black-and-white illustrations. Mr. Melville's meditations upon the Master are elegant, eloquent, and at times illuminating. His feelings are lively and their liveliness is communicated; he can write about sculpture in a way which adds to our pleasure. But he would like us to feel more than pleasure; a devotional tone is maintained throughout and, from the outset, he makes it clear that his God is a jealous God:

> Sculpture has to make some claim to be sacred if it is not to be valued as the higher knick-knackery [the voice of doubt asks whether this valuation is to be applied to the work of Degas, but in a work of this character the voice of doubt is not to be heard] and it seems to me that throughout his career, Moore has created works which provide a kind of animistic shield against the purely human level of existence.

Perhaps he has, and very nice too; but this is not the most illuminating of Mr. Melville's observations, or rather it illuminates by reason of its manner rather than of its matter; for the manner is serious, earnest and humourless. The writer is saved by his literary grace from pomposity, but only by a hairsbreadth.

> The tunnelling that in the past served as a "conception of the body as a magic vessel" is now presented as an intention instead of as a result, for the forms are involved in acts of penetration. The reclining figure has been transformed into a bacchanalia of golden biomorphs, emblematic of universal coition.

One feels that the pseuds are only just round the corner and that, at this point, the voices of doubt become too insistent not to be heard. They belong not to the old philistines and reactionaries, these have for long been silent, but to the young iconoclasts of the art colleges; and this book, so perfectly suited to their devout elders, will suit them too, but in a very different way. For it must be allowed, even by many of those who insist upon the greatness of this sculptor, that Mr. Melville's volume offers altogether too convenient a target for the adversary.

It is not only that the passages which can too ea assailed with mockery; the ar ment of the illustrations almost to parade the weakest of the sculptor's oeuvre. Ta instance, the drawings of a " Figure" made in 1940: the finely reproduced and spread two pages as though they master works. They are not have great charm, they are tive, a little mannered and coloured. The "Mother and C of 1933 receives much the treatment, and so too the " Woman" of 1959 and the " Women and a Child" of These are all minor works receive pride of place. In the same way, but to a lesser ex are given close-ups of which seem designed to Moore's affection for the qualities of his material. The cal devotee will find them ing—as, in a superficial w are—but there are others think that they prove cl Moore is altogether too an artist.

It is one of the disadvanta the devotional approach that thing is accounted sacred an the master is thought to nothing save masterpieces. worse disadvantage arises. Moore has become not religion but the religion appears, that of the Establ Established religions engend conformity and the non-con are quite as uncritical as mists. Henry Moore will their strictures, he is qui enough for that; and if survive the worship of his ze can survive anything.

Quasi-non-governmental

CE L. R. SMITH and
C. HAGUE (Editors):
Dilemma of Accountability in
ern Government
Macmillan. £4.50.

centuries ago the American s devised for themselves a con- in conscious reaction the practice of Great Britain. their chief purposes was to the concentration of power point. The less the central nt had to do the better satisfied. There followed century of laissez-faire and enterprise, weak federal gov- and strongly defended rights. A hundred years ago federal power had to reassert even at the cost of civil war, to preserve the Union. In present century it has grown more powerful, partly as a re- of further wars and partly be- in the world of modern tech- there are more and more which can only be carried by collective organization and Much thought and experi- has therefore had to be de- to the evolution of methods of ing these ends without estab- an overwhelming weight of bureaucracy. The outcome creation of what are clumsily for want of a better name, -non-governmental agencies"; it is hard to see why "quasi- mental" would not do just as

the diversity of starting- the British experience has not very different. There was ini- resistance to the exercise alized power, and in the -five years two periods of government have in fact considerable impetus. But time there has grown up even within the Labour centralization can be Hence the intermediate accorded to nationalized in- and public corporations. the talk of "hiving off" from the central apparatus ment is more characteristic Conservative than of the Lab- ty, both have proved undog- in practice. It was a Labour ment which decentralized the Fire Service at the end of World War, and another turned the Post Office into a corporation. It was a Conser- government which created the Training Boards, and an- which took powers to nation- Rolls-Royce. Some but not all activities, and many others or less like them, also fall into broad category of "quasi-non- mental agencies". British and experiences have thus to move on more or less lines.

1969 a group of politicians, officials, businessmen and from both sides of the met at Ditchley Park, near to discuss their common An exceptionally able of papers was submitted conference, and these are now together with two sub- introductions summarizing of the discussions from and a British point of The contrast between the and the closing papers is At first sight it looked whether the two sides were concerned with the same sub- This was partly because the in each case naturally particularly interesting which had arisen in experience. Isolated from context, the two groups seem hardly to belong of activities. The show signs of fumble for a sense of As the Ameri- Agreement was the discussion high enough level The unanimity reasonable men to dis-

These words might well serve as an epitaph on many well-meaning attempts to arrive at an Anglo-American consensus. The list of topics for the specialized papers shows how far apart the participants were at the beginning. American specialists dealt with university research, educational laboratories, and aspects of the national programme for the relief of poverty, as well as with "government-oriented corporations". Only the last example occupied common ground with the British list, which included the problems of government contracts with firms like Ferranti, Bristol Siddeley and Rolls-Royce, along with "quasi-non-governmental agencies" such as the Atomic Energy Authority.

On closer inspection, however, the gap between the two sides was narrower than it first appeared. Both have felt the same problems, but with different intensity. Activities in the field of higher education and pure scientific research have presented less acute problems in Britain than in the United States, thanks to the smooth functioning of the University Grants Committee and the Research Councils. On the other hand, the American government, being more business-oriented, has suffered no such conspicuous calamities as the British in the field of aerospace contracts.

Both sides rightly recognized that in principle, though in different degrees, the same problems remain to be solved on both sides of the Atlantic. The differences arise, as the editors point out, from differences of historical experience. The United States started with a diffusion of authority, the British with a strong concentration. "Whereas extreme pluralism in the United States has led to an interest in strengthening the traditional government sector, the British have sought accountability through devices which disperse authority." As the Americans struggle uphill, they meet their British counterparts on the way down. They do not meet on a single clearly defined line; but however each of them would define their present position, it is certain that the problem of "accountability" would figure prominently in it. There would be different answers, however, not only on opposite sides of the Atlantic but between different members of the national contingents to the question: who is to be accountable to whom?

It is in establishing the terms of this relationship that American and British experience seems to have been most distinct. In the United States the Civil Service has been relatively weak. It has had difficulty in controlling effectively the activities of "quasi-non-governmental agencies", particularly in the field of social welfare. One symptom of the difficulty has been the prolonged debate over the comparative merits of grants and contracts as a means of exercising financial responsibility. The debate sounds strange and remote in British ears. Since the creation of a highly centralized "welfare state" there has been no such problem on this side of the Atlantic. But there have been many others, the chief of which arise from the size, power and complexity of the Civil Service. The central problem in British society is to impose accountability on the executive bureaucracy. A multitude of devices have been developed, from the Public Accounts Committee to the Parliamentary Commissioner or Ombudsman. The lesson of the Fulton Report on the Civil Service is that no complete solution has yet been found.

On the whole, both American and British authorities have found the problems of political accountability more intractable than those of financial accountability. There have been scandals on both sides of the Atlantic over the administration of public funds, of course; but it has seldom been difficult to define and allocate responsibility. Political accountability is a more nebulous concept. A British participant at the Ditchley conference raised in passing, but scarcely answered, the question whether Sir Thomas Dugdale need have resigned over the Crichel Down affair. An American participant referred to the objections raised by statutory authorities to the growing practice of providing public funds for non-profit-making organizations in the field of social welfare—not because they might be misused but because they implied a failure on the part of the statutory authorities. Oddly enough, no one seems to have mentioned the innovation in British constitutional practice involved in conferring on "quasi-non-governmental agencies" (the Industrial Training Boards) a statutory right to collect and administer a financial levy.

In so vast and uncharted a field, it was impossible to touch on every item. The participants drew back with an almost perceptible shudder when they confronted the concept of "social accountability", in which it seemed to be implied that "everyone should have the right to interfere with everyone else in deciding on programmes—if not on processes: that all of us were accountable and wanted to hold others accountable".

Clearly the Ditchley conference opened up more problems than it solved. The boundaries of discussion grew wider with each attempt to define them. But what could have been a diffuse and "dilettante exploration", to use the phrase of a British academic, took on an almost awe-inspiring character under the impact of first-class minds. It would not be too hazardous a forecast that this occasion may be seen as a turning-point in the study of public administration in both countries.

Postwar Italy

GIUSEPPE MAMMARELLA:
L'Italia dopo il fascismo
445pp. Bologna: Il Mulino. L.5,000.

The original English version of this book—*Italy after fascism: A political history 1943-1966*—rarely ranged outside parliamentary politics, but offered a useful account of the surface facts of postwar Italian political life. This new edition brings the story up to the end of the fourth legislature. It also contains an appendix of statistical material—particularly useful for the data on schools, university students and book production—and a valuable list of ministers in the twenty-seven governments between 1943 and 1968 (four more governments have since fallen). It remains more of an introductory account than an analysis, and still does little to explain the disjunctions between an unstable political system and a fundamentally strong economy.

The most interesting differences from the American edition are the author's revisions for an Italian public, in the course of which he has modified his cruder anti-communist statements and is more cautious in his approval of Christian Democrat tactics and claims. The 1948 "Christ versus Communism" electoral campaign, for example, is no longer judged "essentially a triumph against Communism and for the values of Western civilization". Have the events of the past few years radically changed Professor Mammarella's opinions, or do different national reading-publics require different interpretations? Whatever the reasons, the variance in tone and comment between the two editions may leave the reader in doubt about the possibilities of objectivity in writing even recent factual history.

Weidenfeld Nicolson

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Appeasement and after at *The Times*

DONALD McLACHLAN :
In the Chair
Barrington-Ward of "The Times", 1927-1948.
304pp. Weidenfeld and Nicolson. £4.20.

There is still no satisfactory biography of any editor of *The Times*. Admittedly the post is a protean one. A newspaper may not have to be all things to all men. It does, particularly if it is a seriously-intentioned newspaper, have to mean something to a great variety of men—and women. Can biographers have the knowledge and judgment to describe and assess how the editors' responsibilities to their host of different interests have been discharged?

The trouble is, hardly any of them try. They do not see that an editor's strength can be measured only by what he has made of his paper as a whole. Instead, more often than not, they confine him to his weakest ground. Editors are at their worst as politicians. They delude themselves if they think ministers pay any attention to them on their merits. Party politics—and governing a country even as minority-consenting as Britain is still a continuation of political warfare—is a far too self-centred, power-hungry business to tolerate outsiders. Barnes, it is true, had influence. Britain a century and a half ago was not a democracy. C. P. Scott never managed to "save Lloyd George's soul". J. A. Spender was a mere mouthpiece of Campbell-Bannerman, Asquith, and their colleagues. If Geoffrey Dawson thought he had any real influence with Halifax, it is fortunate he did not live to read his friend Edward's autobiography and discover what an insignificant place he had in that statesman's memories.

In justice to Barrington-Ward it must be said he was too modest to have many such illusions. Yet he had some. He did take Cripps's and Churchill's requests for advice seriously. Once he was in the chair, Mr McLachlan (who died shortly after completing this book) depicts him "finding time to drop in on ministers as Dawson used to do, hearing their troubles and offering them advice". And if Mr. McLachlan is correct in his surmise that during the year of Munich Barrington-Ward felt that when writing his leaders he was "taking part in government", then he had left reality behind and was out of his depth. Editors cannot, and should not try to, take part in government. *The Times* itself made out the classic case against this in 1852. What they have to watch is that ministers' efforts to use them do not succeed. The foreigners' belief that *The Times* is in one way or another an official voice of Britain is the worst testimonial its editor can have.

Of course Mr. McLachlan's book goes yet once again over the sorry ground of appeasement. Indeed he confesses at the outset that it was Stanley Morison's "envious judgment" (it is difficult to know what this phrase means) in the last volume of *The History of The Times* which first directed his thoughts towards writing a life of Barrington-Ward. As Morison is a shadowy though important figure in his story, a word should be said about him. How remarkable a man he was Nicolas Barker's forthcoming biography should reveal. So far as Printing House Square is concerned, his greatest achievement, apart from his creation of Times New Roman, was his rehabilitation in 1945 of *The Times Literary Supplement*. During the next couple of years he put it back firmly on the level it should never have left. (Barrington-Ward cannot escape some responsibility for its intellectual decline before this.) Over and above this, Morison was supposed to have some unspecified general influence as an *éminence grise*. Mr. McLachlan at one point describes him as Barrington-Ward's Grand Vizier. If he was, that is a criticism of Barrington-Ward, not of Morison. An editor should not allow any man to have power without responsibility, no matter how close a friend he may be. Morison readily accepted this after Barrington-Ward's day, when it was pointed out to him. His real interest was in principles, not in policies.

On appeasement Mr. McLachlan is no more convincing than earlier apologists. To begin with, Dawson was editor till 1941, so for the whole of the appeasement period he was ultimately responsible. It is true that Barrington-Ward wrote most of the relevant leading articles. He had a deeper-based reason for being ready to pay almost any price to avoid another world war, for he had a fine—and, to a sensitive mind, harrowing—career in the first one. But after all the quotations have been selected, after all the explanations have been given, after all the special pleading has been done, the facts remain. There was no secret that the Nazis were evil men. Others—in Barrington-Ward's own profession, Crozier of *The Manchester Guardian*, and, in his personal circle, Bob Brand—saw this and knew there was a duty to demonstrate it. When Dawson and Barrington-Ward awoke to the fact that no spoon justifies supping with the Devil, it was too late. To conjure away this or that unfortunate sentence, to justify a particular action by the stress of the occasion, does not weaken the charge. It is the general tenor of a paper that counts. And those who remember the exasperation and indignation to which *The Times* drove them in the Hitler years will always remain convinced that this was far from its finest hour.

Though Barrington-Ward died comparatively young, happily he lived long enough to show himself in a wiser vein. In his talk with Colonel Astor about taking over from Dawson he said he "thought it the duty and opportunity of *The Times* to prepare for the great social changes inevitable after the war".

He had recruited E. H. Carr to the staff, and although the collaboration was not an easy one and lasted only five years it covered the change-over in the nation's mind from dubious victory to reconstruction, from Coalition to Labour Government, and from world war to what at first seemed world peace. Barrington-Ward's seven years as editor, from 1941 to 1948, did much to help *The Times* recover its reputation with the progressive and middle ground of the nation. It is true that where he was cautious and Carr was impetuous, the subsequent years have shown that Carr saw farther and with clearer vision. Nothing is more impressive in the book than his memoranda which Mr. McLachlan quotes. But Barrington-Ward was entitled to feel that if *The Times* jumped too far at once it might lose its followers. As it was, there were Tories who were ready to accuse *The Times* of going pink and deserting its traditions. It should not be forgotten how right-wing and intolerant much of official Britain was in the war years and the years immediately after. Even Archbishop Temple was regarded as a dangerous revolutionary. Barrington-Ward lost his pioneer but he stood his more modestly advanced ground.

He did not live long enough to take *The Times* into what h have thought the promised la was always a man under Even in his days as assista of *The Observer*, when h barely thirty, he described h having "a wearing sense o sibility". Mr. McLachlan much of the strenuousnes editor's life. Its satisfactio than compensate for its d Printing House Square it notably secure. Compared minister, the editor of T leads a safe and sheltered But Barrington-Ward's was always at work. He de his time; sadly it was of an i caught on a recuperative c Mr. McLachlan fairly points did so before he had "a f paper and a staff chosen b self" to show what he achieve.

Against this, he was a la in *The Times* during its h from 1927 to 1939. He mu had some interest in the which it dealt with life politics, and some power to He was a cultured man, an surely have cared how it trea arts. He knew that a paper thrive on its opinions abou must have been concerned ab adequacy of its news, the qua its reporting, the range of in ests, and the character approach to them. In none of things is any constructive a ment recorded. Yet they ar make a paper and give it a ing. Against such omissio time-table of an editor's da he reads the newspapers wh gets up, when he holds the conference, and at which lunches and dines—are of n quence. Mr. McLachlan ha rably succeeded in his "cent pose . . . to give a picture remarkably conscientious, gent, kind and brave But if he has truly shown th "editing a great newspap the question he leaves to whether Barrington-Ward great editor or not, is answered.

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Cotton and after at *The Guardian*

DAVID AYERST :
Guardian: Biography of a Newspaper
702pp. Collins. £4.50.

Fortune, which as often as not is another name for good judgment, has smiled on *The Guardian* (and the old *Manchester Guardian*) yet again. Both reader and paper gain greatly from its history on this scale being a sesquicentennial and not a centennial volume. Had *Guardian: Biography of a Newspaper* appeared in 1921 it would in all probability have been written by L. T. Hobhouse, and would have been narrow and dull. David Ayerst's book is neither. More important, it would have concentrated almost entirely on C. P. Scott, and have therefore been out of perspective.

Neither time nor new information can make Scott less than a great editor. The story of his paper's rise to world renown is in large part his story. It can now be better seen, however, how much it has been the story of other men also. First among them was John Edward Taylor the second. Scott was *The Manchester Guardian*'s builder. Taylor was its architect. He was as decisive a figure for Cross Street as John Walter II was for Printing House Square. Both *The Guardian* and *The Times* were made by their proprietors of the second generation.

Taylor's wisdom shows nowhere better than in his relations with Scott. He was a natural leader of men; Scott was not. He was generous; Scott was stingy. Herbert Sidebotham, one of the most brilliant journalists *The Manchester Guardian* ever had, would not have been lost for the sake of £200 a year if Taylor had still been alive. The trouble that arose over Scott's obtaining ownership of *The Manchester Guardian* after Taylor's death, at a ruinous price no one had contemplated, was due largely to Taylor's anxiety over the way Scott was running the paper. (He had the highest regard for Scott's editing.)

How ludicrous it seems now that one of the main proposals the trustees made during the tortuous negotiations arising out of the will was that, while Scott should remain editor, his son John, the manager, should be dismissed! For if C. P. Scott built *The Manchester Guardian*, it was J. R. Scott who saved it. Without him, without his drive to buy the *Manchester Evening News*, without his determination to leave his editors absolutely independent, without his self-denial in ultimately renouncing ownership of both papers and setting up a trust, there would be no *Guardian* to be celebrating its 150th anniversary this month.

One of the great merits of Mr. Ayerst's history, and one of the benefits of having waited fifty years, is that it does justice to this little-known, remarkable man. Mr. Ayerst prints a revealing note John Scott wrote to Wadsworth in 1946, deprecating praise of him in a centenary volume on his father. It was, he said,

> rather like having a book on say Lancashire v. Yorkshire matches at Old Trafford and writing the "intro" around the groundsman. It is the star players who count and in whom the public are interested.

Of course it is; but they cannot perform if there is no ground to play on.

Star players *The Guardian* has had in plenty. Here too Mr. Ayerst's book gains by its timing. How credit for achievement should be apportioned is better understood today than it was in the last generation. Also the historian can be more frank. The curious Scott-Montague-Hobhouse triangle had to await the deaths of all of them before it could be drawn. Even now the puzzle of Montague's resignation cannot fully be solved. "One is left wondering helplessly", Mr. Ayerst confesses, "why Scott made so little use of a man who wrote so well." Sidebotham's loss has already been referred to.

On a happier note there is the roll of such famous *Guardian* writers as H. W. Nevinson, J. L. Hammond, Allan Monkhouse, Gordon Phillips, Harry Boardman, the never-to-be forgotten James Bone, and the eternally young Neville Cardus. It is good to have justice done to Crozier's editorship, for his asperity made him a man difficult to appreciate. And never was *The Manchester Guardian*'s strength better shown than when, on Crozier's death, it could replace him from its own ranks by Wadsworth, a great editor if ever there was one. Best of all for old Cross Street hands, backroom men such as Attenborough, Hobbs, E. J. Phillips, and Arthur Wallace are not forgotten.

For the serious student, this life-story of one of the world's great newspapers raises many questions at a time when so much of the press is in a parlous state. *The Guardian*, child of Peterloo, was founded by cotton men, and became prosperous because it was regarded as "the cotton lords' bible". It has outlasted the reign of King Cotton. It may be said even to have outlasted the Bible. It flourished when Manchester was the industrial hub of the empire. Today there is no empire: *The Guardian* is in London. Presumably it has had to lean on the *Manchester Evening News* since the Second World War as it did before it. Yet today its sale is higher than it has ever been. The Liberals who were for close on 100 years its main readers—C. P. Scott's "hard core, that we shall never lose"—have vanished. Today, when whatever the new generation may think, politics are not nearly so fierce as they were in Victorian days, it commands new and equally passionate allegiances.

To all this there are two answers. One is J. L. Hammond's "The real strength of the M.G. is in their reporters". The other is *The Guardian*'s long tradition of integrity. It has in its time made grave mistakes. It has done foolish things. On occasions it has lost touch. It has never lost its purpose to present the truth as it sees it. Lamentably few papers can say this.

Press on

MARTIN D. CARTER :
An Introduction to Mass Co cations
142pp. Macmillan. £1.50 back 50p).

The British Press
44pp. H.M.S.O. Paperback

Long-winded jargon is so feature of discussions on co cations media that Martin C commonsense and witty ap make a pleasant relief. He at that figure of popular my the average man, asking exactly is average between fifteen-year-old schoolgirl passion for horses and a year-old sheet-metal work conversational time is di tween criticism of the Gov and avowing support for United. He begins with the of Trafalgar, fought on Octo and first fully reported in *The* on November 7, and ends look into the future. His of how the press has grown and range of coverage, and of broadcasting and television, is brought about a revolution, is presented.

The British Press, in the Office of Information "Re Series", competently gives tory and present organiza newspapers and periodicals, and broadcast news service are sections on ownershi policy, advertising, pay and of journalists, employers' ployees' associations, the Council, contempt of cou and other legal matters

The vital statistics of genius

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h Men of Science
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ientific Basis of National Pro-
Cass £3.50.

exhortation, patriotic pro ents, and above all a plea f-improvement, are none of nducive to good writing or to ught, sociological, scientific, ose. There is a rather touch complicated strain, how writers such as Galton and hich would be admired more not so often lead to bathos. only a hair's-breadth separa eir high Victorian thoughts m modern comedy.

en well-written pages of ction to Galton's "im y influential" book, Profes h Cowan drops the hint that of it are profound, parts of it ard": but Gore's *Scientific* does not attract so honest an ction - indeed, it attracts at all. Can it be that all the publishers' potential apolo for this particular venture were d by the earnest declaration preface of the aim "to assist ing Birmingham in the ank of intellectual, social and advance, in accordance with to 'Forward'"? Or is it that rights deserve a new intro n and others not? Ours not son why: ours simply to grasp improving gems.

Galton was a cousin arles Darwin, and there a member of a remark scientific dynasty. Small that he found the study of al heredity compelling. His as undistinguished—no for Samuel Smiles no. He simply could not stick at anything for very long, and took refuge from nervous collapse by his travels through the Near East and Africa. Statistics were his forte, whether of a suitably serious kind, or whether of the circumstances for producing the ideal cup of tea. He even collected statistics of the vital sort, obtained from his subjects by triangulation rather than by tape-measure.

In 1865, as Professor Cowan tells us, Galton first reported a series of statistical analyses of biographical dictionaries, finding that the frequency of outstanding men who are related is far greater than the frequency of outstanding men in the general population. He concluded that mental traits are inherited. Here it seemed that he was within striking distance of a means to the improvement of society: men must be bred selectively, like racehorses. A whole series of books then came from his pen, including *English Men of Science* (1874).

There was nothing sinister in *English Men of Science*, which was written on the basis of a questionnaire distributed to Fellows of the Royal Society, and includes many anonymous quotations (which it is entertaining to attempt to match with F.R.S.s of the time). As Professor Cowan points out, however, "Galton was very free with words", and "'genius', 'talent', 'faculty', 'innate', 'inherited'.—these are all complex words, which Galton had a tendency to use with utter abandon". He was more implicated than he ever knew in faculty psychology and phrenology, but his statistical methods and his anthropometric laboratory methods were something for which we should now quite properly remember him. We may doubt his conclusions, as that the combination of a large head with great reserves of energy makes for scientific success, but we cannot be totally indifferent to the small biographical details of men who, it seems, could walk twenty miles before breakfast, be satisfied with three hours' sleep, ride sixty miles before dinner, write 2,000 words in an hour, or recite a long passage from Gibbon, not read for fifty years. (We must suppose that Galton's correspondents shared with him the belief that "truthfulness of expression adds greatly to the charm of life".) "The man of science is thoroughly independent in character", was a remark made when independence might mean Jacobinism or adherence to the tenets of a lesser religious sect. (Today it lacks the appearance of a universal truth, when scientists tend to be conformist, unless we are to count social scientists as the real thing.) Plenty of material here for the student of religious scepticism, who might begin with the "terrible tale" of the suicide of the geologist Hugh Miller, "whose brain gave way under the conflict between dogmatic creed and scientific doubt". And plenty, too, for the educationist, although it is hard to know what he might make of Galton's rather vague plans for fostering "innate tendencies". The classics, of course, are no longer the spectre they were.

Gore's *Scientific Basis of National Progress* (1882) was written by a man more concerned with power than with insight; with success more as a nation than as a species. Mental and moral progress was a race in which we must at all costs maintain our position, and for this the importance of scientific research must be taken into account. Although not the commonplace in Gore's time that it has since become, his choice of historical examples is poor (most of them relate to accidents of discovery), and neither his historical sense nor his logic is equal to his task. His ambitions were laudable enough. Research was to be for the public good, and not to be monopolized by those who paid for it. Gore saw that, alas, "the love of truth for truth's sake alone is very weak in most men". The German university system he admired, the lack of financial incentives to British scientists and the dilettante ways of Oxford and Cambridge he deplored. His recommendations were legion, covering everything from sewage to the establishment of a Minister of Science, with a Scientific Council to advise the government. (How long did we survive without?) The seventy-four pages on "the scientific basis of mental and moral progress", the moral section of which, he warned the reader, was "capable of great amplification", are cast in categories so similar to Galton's as to remind us how susceptible we all are to the psychological jargon of our time. Like the entire book, this section rambles in a very uneven way, occasionally prophetic, perhaps even influential, but too often argued in a manner uncomfortably reminiscent of a modern television commercial. "New knowledge is new power." "Nations advance by new knowledge" actually shouts at us from the title page. The publisher should at least have warned us that Gore, like Galton, is read to best effect by gaslight.

Science or skull-duggery?

MIKHAIL GERASIMOV :
The Face Finder
Translated by Alan Houghton Brodrick.
199pp. Hutchinson. £3.

In archaeology extrapolation is a sweetly addictive pleasure. An archaic stratum yields a solitary, semi-human tooth the size of a nutmeg and at once we begin. The huge tooth could only fit into a huge mandible; this demands a huge upper jaw to champ against; such a massive pulverizer can only be powered by vast muscles which in turn must spring from a great skull buttressed by bony crests. The ponderous head now implies vast neck muscles to heave it, themselves attached to colossal shoulders . . . and so our lysergic logic leads us down to the last toenail of our new creation. We add a gratuitous pelt and behold! a Pleistocene King Kong stands before us. It is all so simple, so inevitable. Who would guess that what we are looking at is only the portrait of a lone tooth stranded on a large table?

The urge to envisage the face of departed celebrities seems to bite deep. In spite of less, indeed negligible, evidence Shakespeare looms more clear to our inward eye than Mr. Malcolm Muggeridge. No one knows what Homer looked like but most of us have our private iconography of him. "And they were judged every man according to their works" is not for us. We first need to establish a face and a patronymic. Junius and the Master of the Magdalen Legend remain pseudonymous shadows. A scrap of bone from Olduvai Gorge is even more of a wraith but give it a name, *Australopithecus robustus*, and he at once becomes a solid, trustworthy colonial whom we can address as Mr. or even Esq.

Mikhail Gerasimov spent his life devising a way to reconstruct the personal, individual face from its skull. *The Face Finder* tells how he developed this technique and applied it to modern forensic material, historical characters and prehistoric remains. He was not the first in the field. The anatomist Schaaffhausen had tried his hand in 1877, and in 1899 Kollmann and Büchli had pygmalioned a Swiss neolithic woman from her bones.

These experiments, though ingenious, lacked method. They became a Rorschach test where each worker projected his own fancy. Gerasimov was the first to evolve detailed rules for inferring the shape of soft facial tissues from the minute structure of the underlying skeleton and from his earliest attempts, about 1924, he achieved remarkable results. He also drew scepticism and hostility from many fellow scientists, admiration and discipleship from a few. Twenty years ago, when the reviewer first met his work, he regarded it with wary suspicion, then fell under its spell, until gradually doubts reasserted themselves. Many anatomists, anthropologists and archaeologists have travelled this same circle: *The Face Finder* goes part of the way towards revealing why.

Was Gerasimov always as objective as he would have us believe? Could he have been objective enough to banish all preconceived images from his mind when refleshing in wax the skull of Ivan the Terrible? Which of us could do as much with Henry VIII? Gerasimov was an archaeologist and sought to complete his computerized busts with hair, beard and garments accurately styled. What should be done with Neanderthal Man? If he is seen as nasty and brutish we give him matted hair, stubbled chin and glowering eyes to match the hafted axe brandished in his hand. The identical face shaven and washed, poised between pomaded hair and clerical collar retains so little of its cannibalistic menace that, manifestly, buttocks wouldn't melt in its mouth. Subjectivity seems inescapable.

There is plenty to cavil at here, which is one of the reasons why Gerasimov continues to arouse misgivings. Few anatomists now accept his criteria for so narrowly estimating the age of elderly persons. Some passages are anatomically ambiguous but this is probably the translator's fault rather than the author's.

Among Gerasimov's reconstructions of historical persons were Rudagi, the Tadjik poet, Tamerlane, Ulugh-Beg, Schiller, Tsar Feodor and Admiral Ushakov. They fascinate but again doubts obtrude. If a portrait of his subject exists he could have checked the wax against it; if no portrait exists we cannot prove him wrong. Heads he wins, tails we lose. This is not to impute deceit but to alert ourselves to pitfalls in the method, pitfalls which Gerasimov himself well recognized, as when he confesses that details of the ear must be "intuitively" reconstructed. How much else was intuition rather than strict anatomical coherence? He quotes eight lines of Rudagi's verse, in which olfactory images are used as supporting evidence that the poet had lost his sight. By selecting the appropriate eight lines it would be equally easy and preposterous to prove that Shakespeare had gone blind, deaf, dumb, or anosmic according to our choice.

Despite this, many misprints, and some infelicitous translations, Mr. Brodrick has given us a beguiling book. It was a task worth doing because this work has been largely inaccessible to English readers, which makes it regrettable that nearly a quarter of the book is devoted to a rather shaky and uninspired account of early human types.

Gerasimov claimed that from a skull he could produce the unique, individual and recognizable portrait of its owner. It was a bold claim but he probably came nearer to achieving it than anyone else.

The fascinating correspondence between Albert Einstein and Max and Hedwig Born (the original German edition was reviewed in *TLS*, January 15, 1970) has now appeared in English translation (*The Born-Einstein Letters*. Translated by Irene Born. 240pp. Macmillan. £3.85). One might have been apprehensive about the sections containing scientific terms, but these must have been expertly checked for the whole of the translation is excellent. The collection provides deep insight into the involvement of eminent physicists in the development of scientific ideas.

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From Haeckel to Hitler

DANIEL GASMAN:
The Scientific Origins of National Socialism
208pp. Macdonald. £4.

If one or two politicians today tread carefully around the hazards besetting what might be called the immigration problem, this is perhaps because they recall how under the Nazis racial concepts infiltrated legislature and judiciary alike, and recall that they did so as a result of the influence exerted by pseudo-intellectuals of a species not entirely extinct. In the introduction to a volume published jointly in 1934 by Gütt, Rüdin, and Rutke—respectively a doctor of medicine in Frick's Ministry of the Interior, a university professor, and a doctor of jurisprudence—there is a paradigmatic declaration of the influence of biological thought on German cultural life, mentioning the works of Darwin, Mendel and Galton, and the subsequent work of Baur, Rüdin, Fischer, Lenz, Ploetz, Schallmeyer, Correns, de Vries, Tschermak and others. It had become a platitude that "the natural laws discovered for plants and animals ought also to be valid for man", and this was held to have been "fully and completely confirmed within the last thirty years through family research and through the study of bastards and twins". Haeckel was not mentioned here, but in the same year a number of pro-Nazi commemorations of the centenary of his birth left no doubt that the Nazi leaders were implementing many of his ideas, in an all too flattering way.

Daniel Gasman's "scientific origins of National Socialism" are for the most part Darwinian, although Darwin would have shuddered at the thought, and a subtitle, "Social Darwinism in Ernst Haeckel and the German Monist League", gives a more precise idea of the contents of the author's very well-argued thesis. The book ends, apart from a glance or two at the Nazi heyday yet to come, with 1919, the year of Haeckel's death. Professor Gasman, whose purpose is one of showing the proto-Nazi character of Haeckel's thinking, and of the Darwinist movement which he created in Germany, is also intent on correcting the thesis that the *völkisch* and proto-Nazi movement was a reaction to mechanistic philosophy, and that it was in particular a reaction to the naturalistic philosophy of Haeckel and the Monist League. In both respects he is completely successful.

When elevated in 1862 to the chair of zoology and comparative anatomy at Jena, Haeckel was already an extreme patriot with a clear vision of a united Germany achieved if need be at the expense of the rest of Europe. If the degenerate Italians could unify, why not also the Germans, their moral and spiritual superiors? Darwin's *Origin of Species* had been translated into German in 1860, and Haeckel's scientific labours began, metaphorically speaking, at the foot of the evolutionary tree, at the top of which was Mankind. His work on radiolaria brought him academic recognition, and perhaps his most enduring monument was to be his work on phylogeny; but he also made an enviable reputation as a writer of best-selling works of Darwinian biology. In his constant reiteration of the animal origins of man, and in his extravagant way of dogmatizing, he was not popular with many of his colleagues, but he nevertheless assembled in Jena a group of young biologists of considerable talent. To a large extent his appeal was to the emotions rather than to the reason of his followers. One of them saw in him the god Odin of nordic mythology. He was embraced by Bismarck, and in return had him named Honorary Doctor of Phylogeny!

The Monist League was founded only when Haeckel was over seventy, but at his suggestion, and it comprised members who counted themselves his disciples. By 1911 it had 6,000 members, meeting in forty-two local groups throughout Germany and Austria. In the war he was as bellicose as any of his countrymen, and the armistice left him despondent: "Our laughing heirs will apparently be the yellow Mongolians." The opportunist, cunning, and essentially destructive English had of course rejected a world jointly led by them and Germany, and had in turn introduced the brown and yellow soldiers into Europe, with potentially disastrous consequences. What was he to expect of a people stubbornly opposed to the metric system, or allowing "the ridiculous comedy of the suffragettes"? He fulminated against socialism but died before he had seen many of its consequences.

Darwin, according to Haeckel, had incontestably shown that man had animal origins, and there was therefore continuity between the laws of nature and those of human society. Social rules he supposed to be reducible to the natural laws of heredity and adaptation. Humanist nonsense about the liberal development of the human spirit must be stopped, and as a first step the traditional classical education might be replaced by a scientific one. "Science" for Haeckel as often as not meant biology, just as "man" denoted the white Germanic races. (The negro, he thought, was "incapable of a true inner culture and of a higher mental development".) He was far from being alone in his racialism, but—to take one of numerous similar examples—at the height of the Second World War it was one of his disciples, Alfred Rosenberg, who headed the notorious Nazi institute for research into the Jewish Problem, and who often spoke of the war as a "cleansing biological world revolution". When the Teutonic Reich attempted to impose order on the "Jewish-Bolshevist chaos", it could turn to Haeckel for a rich mine of ideas.

Bearing in mind that some of the Monists turned out in the end to be anti-Nazi, and that Haeckel died before he could declare himself, we might charitably resist the temptation to blame him for the excesses of the Nazi Party to come. Even so, his words continued to echo down the corridors of German universities, not least in his own at Jena, where Professor Walter Grundmann, for instance, published a work showing that Jesus was not a Jew. Haeckel had in fact deduced from such observations as that of Christ's high and noble personality that his true father was a Roman officer who had seduced the Jewish Mary. (Hitler found the idea appealing.) Haeckel and the Monists attacked revealed religion as an outworn mythology leading to decadence, but were content to replace it by a pagan mythology with a creed of selective hatred. As Professor Gasman points out, Haeckel's highly popular *Welträtsel* became the chief anti-Christian German primer. Nature would provide revelations enough: its observation was a religious activity, and the young Monists actively preached a form of pantheism which greatly influenced German art forms, in some respects romantic, but sternly symbolical. Haeckel and his Monists ostensibly spurned what they were pleased to call metaphysics, but they bequeathed to their nation one of the most pernicious metaphysics of all time, the structure of which could be learnt in an hour or so, given four or five fundamental concepts—blood, race, folk, soil, and space.

Professor Gasman's book is written with a fluency which almost deceives the reader (although certainly not with intention) into thinking that Haeckel's own social philosophy was cogently argued. But even judged in Darwinian terms, Haeckel's arguments were irrational, a muddled compound of his ambitions for himself, and his country, and his race. The Monists were disposed to accept without anything resembling proof that each national and racial group was ultimately characterized by hereditary qualities. It was supposed that if these were not controlled by the politicians then the nation would be subject to "biological decay". No sign of Darwin here: and indeed it is ironical that the very liberalism which typified the English Darwinians was seen as an enemy by the Monists. In the pursuit of the biological fitness of the *Volk*, the Monists called for eugenic reform. This panacea would eliminate crime, alcoholism, poverty, pornography, and indeed all other ills, which were for the most part traceable to feeblemindedness or liberalism, of which the former at least was a genetic defect. Haeckel and his disciples pressed for the political use of "elimination". How Galton by comparison!

Since Darwin clearly m Haeckel and the Monists, ing to consider the influence of winism on Marx and his le who drew a totally differen conclusions. The Darwinian for survival was seen as class struggle. Engels was con vinced that there were hidden cal laws to be discovered, biological laws, and Marx fessor Gasman notes, was sceptical, observing that Da unconsciously imposed up world of animals and plants tially bourgeois struggle for ence, involving the division of competition, opening up new kets, the exploitation of and so forth.

The elitist Haeckel disliked idea of the socialists' approp Darwinism, which for him the subordination of inferio sought class harmony rather class struggle; but the harmo to be achieved by autho means. Partly perhaps as a of romanticism, and partly biological well-being meant air, the Monists showed the hostile to urban civilization sang the praises of an ideally and vital peasant class. Agai ically, they consequently fa the nationalization of land some sort of collective rural prise.

For the Marxists, interna ism; for the Monists, naturali was simply a question of should choose sides in the human war.

Professor Gasman's book the reader to extract his own in much the same way as Hae tracted from Darwin whatever his purposes, and as the politic their turn abstracted their from Haeckel and his like. For pretensions, there was precious science in Haeckel's social He was a living refutation dictum that to be German is clearly. But to indicate the of the chain of abstraction conception, we should in the member the Führer, who refu travel in a Zeppelin, since laws had decreed that fishes, birds, should be like balloons the much abused Darwin had man still bore indelible marks lowly origin.

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Against rationalism

P. A. Y. GUNTER (Editor):
Bergson and the Evolution of Physics
Translated by the Editor.
348pp. Knoxville: University of Tennessee Press. $10.50.

Bergson was an irrationalist philosopher who reacted against the positivism and materialism of the late nineteenth century, and against the Newtonian, mechanistic, deterministic view of nature. He is therefore usually regarded as "anti-scientific", since in contrast to the rationalism and intellectualism of the Cartesian tradition he set intuition as the only way to the *real* truth about ultimate reality. But Professor Gunter argues that Bergson's idea of intuition was intended to be scientifically fruitful, that it is the affirmation, not the negation, of the scientific enterprise. He also claims that Bergson's reflections on the physical sciences were broadly prophetic of the subsequent theoretical revolutions in physics.

Apart from the long editorial introduction, the book consists of a series of essays and discussions on Bergson's physical ideas by several distinguished scientists and philosophers. These papers are mostly translated from French and German, and almost all of them appear in English for the first time. They are arranged in four sections, the first of which, introduced by Louis de Broglie, the originator of the wave theory of matter, concerns the relevance of Bergson's ideas on time and motion to quantum physics. The second section, on relativity, begins with a discussion between Bergson and Einstein. The third involves the consideration of Bergson's concept of time from the viewpoint of Zeno's famous paradoxes. The concluding section is a summary by Professor Milič Čapek of the relevance of Bergson's thought to twentieth-century physics as a whole.

The essays were written at different times and are from diverse viewpoints, and naturally the views they express are by no means in complete agreement, either among themselves or with Bergson's ideas. Yet they do justify the editor's claim that Bergson's ideas on physics are worth examining, in opposition to the view proposed by Professor Thomas Hanna in *The Bergsonian Heritage* that

> The best explanation for Bergson's impressive failure as a scientific theoretician is the same as that for his failure to succeed as a metaphysician: he was not sufficiently conversant with the outlook and problems of mathematics and physics.

It is, however, possible to agree with Professor Gunter that Bergson's rejection of mechanism pated the twentieth-century physical science, without that the parallels between Be own theory of matter and the results of the revolution in are particularly significant son's reflections on physi dominated by a single pre tion: the problem of the rel of time, seen as experienced and the properties of matter. But as Dr. G. J. has pointed out, his phil merit lay in the originality emphasis on those characte time which are truly tempo not quasi-spatial, rather particular ideas which he lated. Most physicists wou with him that time is diff different from space, but not is therefore fundamentally in ble to mathematical terms.

Nevertheless, this is a ver esting book which illumin rather neglected aspect of Be philosophy, whatever one ma of Professor Gunter's cla Bergson's thought remains ingly relevant to recent discoveries. His argument significance of Bergson's intuition is more convincin provides a useful correctiv frequent misunderstanding idea.

eeping in mid-stream

BROWN:
d Young
Bodley Head. £3.

ts are not noted for long- In the tables of life-expect- which are headed by country they rank down among the trades with knife-grinders keepers. How encouraging to find Mr. Brown still at eighty. And—from a point of view, at any rate— more encouraging to find ing in exactly the same has affected for the past expressing the same ironical, middle of the road, opinions and tastes. and punning away like form-master trying to cheer homesick on the first day of

first chapter ("The Buffer and the last are about the of aging. They are perhaps in the book, for in them he an objective interest in his and body which, possibly congenital diffidence, is lacking or suppressed when he with personal relationships. not, naturally, expect the of Victor Hugo, who kept a record of all his physiologi- tions up to the day of his but you will get a strain of stoicism, including one of how Mr. Brown, having, typically, succumbed to the able consultants' craze for traction as a panacea, came too early and heard the dentist's voice: "There goes a perfectly good set of teeth."

In between come reminiscences of journalism and the theatre with much stress on the differences between then and now. The comparative attitude is inevitable for anyone who is looking back, but it is a pity Mr. Brown does not allow himself more exercises in total recall; this is, after all, the nearest we can get to outwitting Time. One of the things that emerges, yet again, from his particular period is the overwhelming significance of 1914 as a climacteric. Not only did the First World War liquidate the Edwardian douceur de vivre. It also put the kybosh on the rationalist's faith in progressive social evolution. In July, 1914, Mr. Brown was attending a Fabian Summer School on the shore of Derwentwater. In the long summer afternoons Shaw in his norfolk suit tramped the hills while the Webbs compiled reports on the state of the nation. They were quite as unaware of the approach of Armageddon as the young Guards officers at Frinton.

There are several equally tantalizing episodes about which one would like to know more. Orage's *New Age* was one of Mr. Brown's earliest stamping grounds. One wonders how he got on, if at all, with D. H. Lawrence and Michael Arlen. The two chief editors in his life were C. P. Scott of the *Manchester Guardian* and J. L. Garvin of *The Observer*, whom he himself succeeded in 1942 for a brief stop-gap regime. It would be difficult to imagine a more fantastically contrasted pair. Alas, the incandescent idiosyncrasies of Garvin are only touched upon.

An interesting assignment Mr. Brown had for Scott was to report on Ireland just after the end of the war but before the arrival of the Black and Tans. Students of modern Irish history will be pleased with the way Mr. Brown defends the memory of one of their heroines, the Countess Markiewicz, against false allegations of exhibitionism. He slips up, however, over the execution of Erskine Childers; he was shot by the Free State, not by "Sinn Fein extremists".

His literary and theatrical affinities have never been with the avant-garde and there has been no Brownian movement with the times. So strong at moments is his almost tortoise-like intransigence that one can imagine the younger generation reacting with an impulse to re-educate him: compel him to read Genet instead of Robert Lynd: switch off *Dangerous Corner* and watch Ionesco. But when it comes to mocking the lunatic fringe he can be relied upon to pull a good one out of the bag. It would be hard to beat this from Jan Kott who, advising on the production of *A Midsummer Night's Dream*, suggested that Titania's Court should consist of "old men and women, toothless and shaking, their mouths wet with saliva, who sniggeringly produce a monster for their mistress".

Roadside thoughts

FRANK MORLEY:
The Long Road West
416pp. Chatto and Windus. £2.25.

This is a rare kind of book nowadays. It is about history, but is too personal to fall into any category which by modern standards could be described as historical. The author values historical ideas more for their suggestive power than for their practical importance or verifiability. He follows no easily ascertainable principle of selection, certainly none which a sense of scholarly rigour might impose: so what emerges is a highly personal study. *The Long Road West* is largely written in the first person: Mr. Morley calls it a scrapbook, which slightly, but only slightly, underrates it. Scrapbooks, like this one, can be made of excellent material and can be great fun; but they make no claim to finish.

Scrapbooks are compiled with no sense of order, as materials come to hand. Mr. Morley does better than that: he presents the reader with a series of ideas and interpretations related to a clear theme: that of the slow advance of Judeo-Christian and classical civilization westwards from the Exodus to San Francisco, where the book had its origin in some roadside thoughts. The theme of the road is predominant: this is no random walk, in either the literal or the technical sense: nor is it a neat, straight, well-surveyed Roman road. It is more like the Ho Chi Minh Trail, which widens and narrows, changes route, is sometimes single and sometimes multiple.

Mr. Morley makes great, legitimate and always acknowledged use of secondary authorities. What he wants is something to suggest thoughts, and for this purpose a good earlier writer on his theme can be more valuable than a dull original source. Facts are sometimes selected and sometimes slightly bent (though always with an audit trail left behind) if the course of his musing demands it. For example, he stresses the absence of Phoenician literature, but later admits that there was a great library at Carthage until the Romans destroyed it. He dismisses this unsympathetic part of the record by saying that no race so little interested in calligraphy could produce a library of general literature. This seems a non sequitur based on a doubtful premise; some might think that the world would be a more elegant place if Punic cursive had survived instead of square Hebrew as the prime alphabet for that group of languages.

But there one goes: one is tempted into tertiary musings, branching off from Mr. Morley's track. Very likely this is how he wants his book to be read. It is stimulating, interesting, aggravating, learned, rather too long, and always well written; best, perhaps because most consecutive, when he describes the Spanish advance into America. It should not be taken too seriously.

After a monstrous piece of *Volksetymologie* which can be disproved at once, Mr. Morley disarmingly says: "I am not suggesting that such trivial thoughts mean anything: at most they are what the Talmud called shadows of a shadow." Lovers of shadow-play will enjoy the book; and it must have been great fun to write.

e wild Irish girl abroad

SUDDABY and
(Editors):
In France
upon Tyne: Oriel

Owenson was born on Day in about 1776 (she enough to forget the Her father was related to Goldsmith, and from him she the flamboyant traits in Her mother was an Eng- odist, and from her she in- the common sense which her to become a success. was nothing if not practical. she was twenty-two or so, her went bankrupt. "Now, dear she wrote at once, "I have novels nearly *finished!* . . . if I had time and quiet to them, I am *sure* I could sell and observe, Sir, Miss Burney thousand pounds for

novels were duly published. were fairly popular; but in *The Wild Irish Girl* established putation as an Irishwoman novelist. She was invited by Abercorns to become part of household, and in 1811 she met family physician, Dr. Charles He fell in love with and became engaged to her. was duly knighted at Lord 's request. Sydney was still but Lady Abercorn pushed sibly into marriage:

> morning in January, she was by the fire, in her wrapper, when Lady Aber- the door and said, "Glor- upstairs directly, and be there must be no more look Miss Owenson's led her upstairs to her room, where a table was for the ceremony—the family standing in full canonicals, book open, and Sir Charles receive her. There was no The ceremony proceeded, Wild Irish Girl was married

Morgan continued to write but in 1816 she em- literary genre. The been closed to account of the Now at last it was open again, and the Morgans set off for Paris. That autumn, on her return to Dublin, Lady Morgan set down her impressions. *France* was published in 1817. She was to leave more impressions in *Passages from my Autobiography*, where she recalled the France of 1818-19, and in her book *France in 1829-30*. Now, in *Lady Morgan in France*, we are given something of all three works, with an introductory memoir and editorial notes.

The Irish and the French have always been in sympathy. "The Wild Irish Girl" is sharply observant, and responsive to every detail of Paris life in the days of the Bourbon Restoration. She raises an eyebrow at the youthful fashionables, enjoys her *déjeuners à la fourchette*, and chats with Talma, "the Gulliver of the French stage. . . . He speaks English fluently", she records, "and told me that he had a great desire to play in one of Shakespeare's tragedies." She sits at Tortoni's (what observer of *la vie du boulevard* could not?), revelling in "the usual collation of ices". She contrasts the Parisian and the English Sunday, she is amused by the excesses of the royalist aristocracy, she discusses Parisian hotels, public gardens, and intellectual life.

Her editors warn us, gently, that her knowledge of French "was considerable, but by no means perfect". It was, in fact, a long way from perfection, and even the most tolerant reader must be irritated by her arbitrary use of accents, her uncertain syntax and spelling, and her factual inaccuracies. Sometimes she errs from political prejudice; sometimes it is clear that she "got up" French literature and history in a hurry before she embarked on her travels.

These, then, are superficial impressions; but they were still worth republishing, and they should give some pleasure to students of France in Romantic, Restoration years.

Avian anecdotes

ERIC HOSKING:
An Eye for a Bird
302pp. Hutchinson. £3.25.

There have been many first-rate bird photographers since the days when Cherry Kearton and R. B. Lodge pioneered the possibilities of that most exacting art, but Eric Hosking has surely never had an equal for consistently superlative work in that field. *An Eye for a Bird*, his autobiography, is well-written and holds one's interest from the first page to the last.

He begins by describing his early life and marriage—the honeymoon was spent photographing golden eagles' eyries in Scotland—and the rest of the book tells of visits to many lands in pursuit of birds. Expeditions were made to Holland, Finland, Norway, Spain, Bulgaria, Hungary, Jordan, Pakistan, Kenya, Rhodesia and the Galapagos Islands, with intervening trips to many parts of the British Isles.

Mr. Hosking is clearly one of those exceptional people able to remain absolutely motionless for hour after hour. His book is full of tales of bird behaviour seldom, if ever, recorded. He tells us of a Cattle Egret actually "blushing" to attract his mate's attention; of a baby short-toed eagle itself then 10 inches in length, swallowing 2 feet of snake; of the mad antics of a cock red-legged partridge at the excitement of seeing its first born chick; and of a sparrow-hawk alighting on the gun-barrel of a keeper when lying in wait to shoot it at the nest, thus earning its reprieve. The volume is full of such anecdotes.

The many photographs in black and white which embellish the book are, as we should expect, examples of Mr. Hosking's skill at its best. The cleverness with which he catches birds in flight—such as the white-bellied sea-eagle and the hovering nightjar—are superb examples of precise coordination between the photographer's eye and the camera lens. The few colour photographs are not as pleasing, for the colours, while giving a good idea of the surroundings, are seldom accurate in tone.

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T·L·S

70th Year 7 MAY 1971 No. 3,610

Commentary

Last year at this time we published a special number of the *TLS* on "The Communication of Science". In this present issue we leave that question behind and attempt the thing itself, the communication of what is being done and thought in one of the most crucial fields of scientific research: developmental biology. The four special articles which we have printed give a representative though, inevitably, less than comprehensive picture of a subject whose theories and their possible applications are of great human concern.

Our four contributors are all preoccupied with the development of form and pattern in somatic or psychological terms. This is not research which we can be content to leave isolated in laboratories because some of its methods and a great deal of its vocabulary echo in quite striking ways research in linguistics, communication theory, anthropology and other *disciplines which abut on the humanities. There are good reasons* why the first number of the *TLS* to be devoted to a single scientific topic should be devoted to "The Biology of Growth".

Dr. Woodland's article (page 537) states the fundamental problem, which is how the fertilized eggs of animals, apparently simple single-celled structures, grow into complex adult bodies with many different types of cells. The current view of development is that all cells contain the same genetic information. It is believed that their different behaviour reflects the fact that different genes are "turned on" in different cells. But how are the genes turned on and off? The more we know about this, the better will be our understanding of the growth of diseased and abnormal cells, such as those which form cancers, and this should lead to discovery of the means for attenuating it.

Professor Wolpert's article (page 533) shows that the emergence of pattern and form is a developmental process of more than narrowly biological interest. He suggests that this process is probably due to the cell's knowledge of its position, from which information it navigates the path of its growth—it's not who you are, but where you happen to be, that determines your future. Developmental biologists are not alone in speculating that the codes of local mechanisms will reveal a more basic underlying mechanism.

Dr. Gaze (page 541) shows why the direct study of the brain's own development is beyond our present reach. He describes work being done to determine whether the intracentral connexion patterns in the nervous system which are associated with the "higher activities" of the human brain—are genetically determined, and to assess to what extent these connexions may be modified by function and environment.

To this last question Dr. Bower (page 523) has some disturbing answers, for he argues that space and movement perception develop during fetal life independent of learning or psychological environment. His conclusions would seem to be of some significance to educationists, sociologists and politicians, to say nothing of parents.

* * *

As the study of Commonwealth literature spreads into Europe, questions about the author and his audience come thicker and faster: Danish students, for whom English is an acquired language, read books written by Indians or West Indians or Africans or Australians, often living in London and for whom English may, again, be an acquired language. This is communication, and often exciting communication, but it can become a less subtle thing than writing, reading, and critical discussion within a known community.

Both the excitement and the dangers were apparent at last week's conference at Aarhus in Denmark which marked the definitive arrival of Commonwealth literature on the European scene. It was natural that the largest contingent from outside Britain should come from Scandinavia, where the standard of English is so high, but there were also representatives from universities in Belgium, France, and Germany.

Of the writers who were present and who enlivened the proceedings considerably, it was a pity that so many should live in London though representing widely separated Commonwealth countries. This is not a criticism of them—for the position of exile can be as honourable and fruitful as that of national commitment—but a regret that the other position was not really represented. While there is undoubtedly a nationalist distortion of literature which sees everything as prestige and nation-building, there is a danger that, if third-world literature is discussed by those sharing a comfortable Western life, however great their sympathy for and knowledge of their subject, the discussion will tend to take its shape from the conventional critical patterns built into European academic thinking. This point was well brought out by David Rubadiri of Makerere, speaking about Chinua Achebe's novel, *Things Fall Apart*.

Whether the centre can hold in the definition of Commonwealth literature is a question that perhaps does not matter too much. The Association for Commonwealth Literature and Language Studies hopes now to form a European region in which Britain will be incorporated. If this happens, then perhaps "Third World" will become the more acceptable term. But a lot depends on the relationship which Europe establishes with the former British dominions and colonies in the economic and political spheres.

Meanwhile, if some university with organizing capacity equal to that of Aarhus (which will not be easy to find) could convene a conference that set world writing in English against a background of publishing, literacy and multilingualism in the various countries concerned, we should have a more complex but in the end more useful model for what is happening.

* * *

On page 521, there is a review of *Hallucinations*, the second novel of a young Cuban writer, Reinaldo Arenas. The original, Spanish-language version of this book was submitted for publication in Cuba but refused, and appeared in 1969 in Mexico. In spite of that refusal and of the export of the manuscript of *Hallucinations*, Arenas is still living in Cuba and has not, by all accounts, been harassed there. There are two obvious reasons why *Hallucinations* may have been judged improper. The first is that its sexual passages are too gamy for a notably strait-laced regime. The second is that the book may have been read more as a parable than an innocent narrative and offensive parallels unearthed between the regimes encountered by the wandering hero and current practices in Cuba. Either way, *Hallucinations* is on the local Index and the conditions exist, even if they have not so far been exploited, for another set-to between Fidel Castro and a Cuban intellectual.

The most durable and active of Castro's feuds has been with the poet Heberto Padilla, and various episodes of it have been recorded in Commentary. On March 20 this year, Padilla was suddenly put in prison, without anyone troubling to say why. He stayed there until last week when he was as suddenly released again, having drawn up a lengthy act of contrition: 4,000 words of self-criticism which are a disagreeable throwback to an earlier style of ideological persecution.

Padilla's abject "confession" was read, soon after he left gaol, to a meeting of the Cuban Writers' Union in Havana. The text does not seem to have been published in Cuba, but it has been circulated abroad through the news agency Prensa Latina. It makes depressing reading. Padilla lays about himself with all the masochism demanded by the form and exposes himself as a peccant counter-revolutionary who has suddenly seen the light. His biggest sin was his defeatism—"The driving force of my poetry has been pessimism, scepticism and disenchantment"—and the defeatist spirit was especially recognizable in his book, *Fuera del juego*, which for all its lack of revolutionary optimism was given a prize by the Cuban Writers' Union when it was first published.

Padilla also analyses his relationships with other Cuban writers and with certain visitors to Cuba, who accepted his distorted opinions, it seems, because of their bias against Fidel Castro's regime. Particular villains are the novelist Guillermo Cabrera Infante, long in exile, the French agronomist René Dumont (once Castro's economic advi out of favour since he dated in the title of a book *Cub il socialiste ?*), the French list K. S. Karol, and the poet Hans Magnus Enzens Padilla also apologizes for "fed his egocentricity" by interviews to the B.B.C., refer doubt to his appearance in vision "Review" programme year which did not seem so revolutionary at the time.

Padilla spreads his black erously over the names guilty less of outright oppo the Cuban regime than of leading flirtation with it. ments tally closely with expressed by Castro himself weekend when he thundered the false friends of the revolution, meaning by that leftist intellectuals in Europe Mexico who had dared to sig lic protests against Padilla's imprisonment. Castro appea have converted Padilla and did he manage it in so short — into the orator of his own mination to re-energize his tion.

What obviously needs renew the siege mentality which Cuban intellectuals must find or actually pernicious. Thus told his fellow-writers that there one sector which is "dragging heels behind the Revolution . . section of culture and the arts". he concluded with a martial to them to "live in a trench, and blockaded by all sorts of ning enemies". As a token of own rejuvenation, Padilla that he had written some positive poems while he was prison; that in itself is a forbid little parable, perhaps, of what Castro sees as the right cond for provoking the creative mind

* * *

The *Guinness Book of Records* well add a new literary record lists, and one which is not likely be challenged for a very long Sir Harold Hartley's new book *dies in the History of Chemistry* viewed on page 543) fulfils an made with the Delegates of ford University Press nearly years ago, when the author ninety-two was a demonstrator the Balliol and Trinity laboratory was advised by two friends to writing history until he was man, and devote his time to mental research. So much scientific view of history. He decided to delay no longer, he made what he describes as "a in procrastination". But procras tion—or is it rather self-control not enough. To break the longevity and early promise are less necessary. And what if the author's powers decline? Fortu for the Delegates, Sir Harold has let them down, and his book model for would-be record bre

Ile-de-France

Marc Bloch had his own, entirely original approach to history. His concern was with the past as it truly existed. The translation of The Ile-de-France, £2.25, has been long awaited, for it displays with unusual brilliance the power of his sense of the past. He studies the region around Paris, rebuilding its character piece by piece. This work is an undoubted classic of modern historical writing.

ROUTLEDGE & KEGAN PAUL
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The emergence of pattern and form

BY LEWIS WOLPERT

Professor of Biology as Applied to Medicine, Middlesex Hospital Medical School

EVELOPMENT OF pattern form, which can be ped together under the phogenesis, still evokes for logists a sense of wonder. ances in molecular biology to the establishment of a ly elegant understanding deal of how D.N.A. repli- "codes" for protein, how A. within the egg "codes" d or a leg remains largely . I still regard it as remark- e, and all the living things about us, have developed gle cell, the egg. How does ized human egg "know", ere, to make a man? the cells in our body come single cell, how did some cells come to make, for an arm and the five fingers and? If one looks at the y stages of development of of a chick—and this is a experimental animal in e developmental processes certainly very similar to —we find that it develops growth from the body wall of an inner mass of rather ing and remarkably similar ls, surrounded by an outer lls. Yet, within two or the main features of the merus, radius and digits, erged. This emergence of ined pattern and form parently homogeneous, or structured, beginning is of developmental pro-

ng in a bit more detail at ation, one knows that the th involves rather active d division of the cells, but to me unlikely that this ocess is very important for lopment of pattern and form. obably worth emphasizing. people seem to think of a lose relationship between d form, probably stimula- the title of D'Arcy Thom- at book. My own view is wth in animals does not de- form, but simply provides erial which is then moulded processes. This moulding of n be considered in terms of forces that bring about in shape. There is now quite vidence that localized cellu- tractions are responsible for lding of many forms in deve- , and this can be illustrated urchin gastrulation.

ne of the hopes of develop- iologists that universal mech- will be found, as in other e thus uses the best experi- aterial. Thus, when Trygve of the University of Stock- studied morphogenesis in chin embryo, we were not in the sea urchin in itself general insights it could The sea urchin embryo has vantages, a striking one be- it is transparent, all the cells ily visible. Using time-lapse graphy—that is, taking , frame a second rather normal sixteen frames a the process can be speeded the movement of individual followed under completely onditions.

our studies with this tech- concluded that one of the anges in form in early deve- the formation of the gut was due to a specific group throwing out long contrac- pseudopods, which the inner wall and the gut in. This type of contractile force seems to be responsible for a variety of other changes in form, not only in sea urchins, but in many other animals e.g., the closure of the neural tube in vertebrates to form the spinal cord. Moreover, in each case the contraction seems to be generated by very fine microfilaments inside the cells, of a type quite similar to those found in muscles.

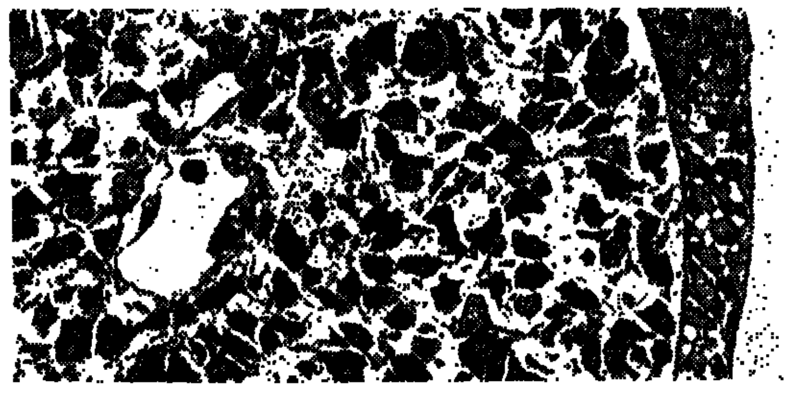
This kind of study begins to provide a way of thinking about development in cellular terms. It becomes much easier now to think about such questions as, what is the relation between genes and gut formation, since that question now can be put in the form: how can genes control pseudopod activity of a particular group of cells? While this is a difficult question, it is quite easy to see how one might attempt to answer it. For example, genes could control production of the contractile protein itself or a substance necessary for contraction. More generally, once we know what the cells do in order to bring about changes in form, much more meaningful questions can be posed and answered in molecular and biochemical terms. There is another important aspect to this. It should begin to be clear that what the egg or embryo contains is not a description of the adult but a programme for making it. There is in the sea urchin no description of gut form, but rather a set of instructions on how to make the gut. Moreover, in making complex biological forms it is usually much easier to specify a set of cellular instructions on how to make the form than to specify the final form. The instructions for making a paper hat by folding are much simpler than a description of the hat. It can be much easier to generate complexity than describe it.

The sort of studies I have just referred to emphasize the role of cell movement in development and it is particularly interesting that Donald Ede, of the Poultry Research unit, Edinburgh, studying a mutant which causes skeletal abnormalities in birds including, for example, extra digits, has found that the cells from the mutant move in a rather abnormal way. He has suggested that one of the effects of the mutant gene, talpid, is to affect cell movement and cell contact during the early outgrowth and that this may be the main cause of the abnormalities observed. This provides a nice example of how genes can affect form by affecting cell contact and cell movement.

In the example of gut formation in sea urchin development the changes in form were due to the motility of a specific group of cells. How were these cells specified? The spatial organization of cellular activities is the key feature of pattern formation as distinct from the development of form. Returning again to the chick limb, the problem is how the cells that will form muscle, and those that will form cartilage, are specified. It is possible to trace what will happen to the cells during development and so obtain a presumptive fate map, that is a map of the limb at an early stage which shows which regions will, for example, become humerus or hand (fig. 1). Now it is one of the remarkable features of many aspects of development that while the fate map tells us what will normally happen to the various regions, it is possible to alter this quite radically by experimental means. The system can regulate. For example, if the presumptive radius and ulna are removed at an early stage, then no defect will be found in the limb: it regulates so that a whole limb is still formed. This type of regulatory process in pattern formation might be better understood with reference to what I have called the French Flag Problem.

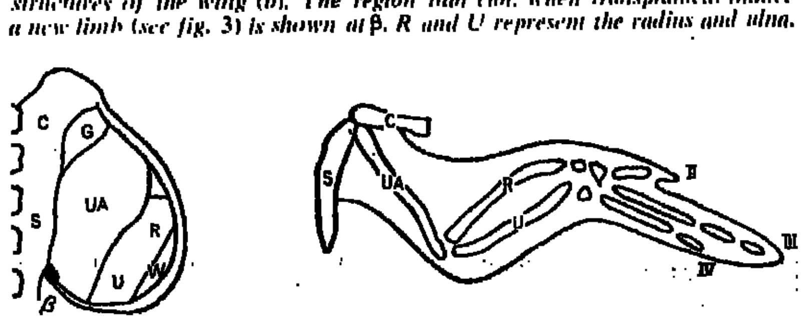
Consider a line of cells each of which can become blue, white or red. The problem is to design the system so that it always forms the French flag, that is the left hand third becomes blue, the middle third becomes white and the right hand third red, irrespective of how many cells there are in the line. (An anthropocentric analogy is to consider oneself in a line of people each having a piece of blue, white and red paper. How would one know which piece to hold up?) The differentiation into red, blue or white corresponds to the differentiation into, for example, muscle or cartilage. The equivalence of all cells is also important; any cell can become blue, white or red, and so it is in the early limb. Almost any cell in the inner mass can become muscle or cartilage.

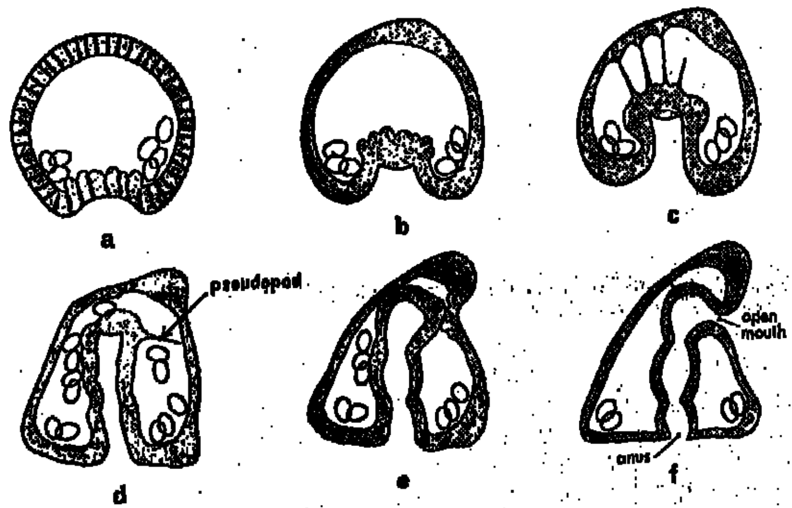
The solution to this problem—



Chick limb morphogenesis

Fig. 1. The chick limb develops as an outgrowth from the body wall. The cells that will form the cartilage and muscles are shown in the photograph. They are loosely packed and rather uninteresting in appearance. The outer layer of cells which forms a jacket will give rise to the skin. A blood vessel can be seen as the white open area. A presumptive fate map of the early limb bud is shown in (a) together with the main skeletal structures of the wing (b). The region that can, when transplanted, induce a new limb (see fig. 3) is shown at β. R and U represent the radius and ulna.





Contractile force as agent

Fig. 2. The formation of the gut in the sea urchin embryo. About ten hours after fertilizing the embryo is made up of about 1,000 cells arranged as a hollow sphere (a). the cells are indicated diagrammatically. The gut forms as an inpushing of the cell sheet and is pulled in by pseudopods seen in (c) and (d). The photograph shows the stage corresponding to (d), the arrow pointing to a pseudopod.

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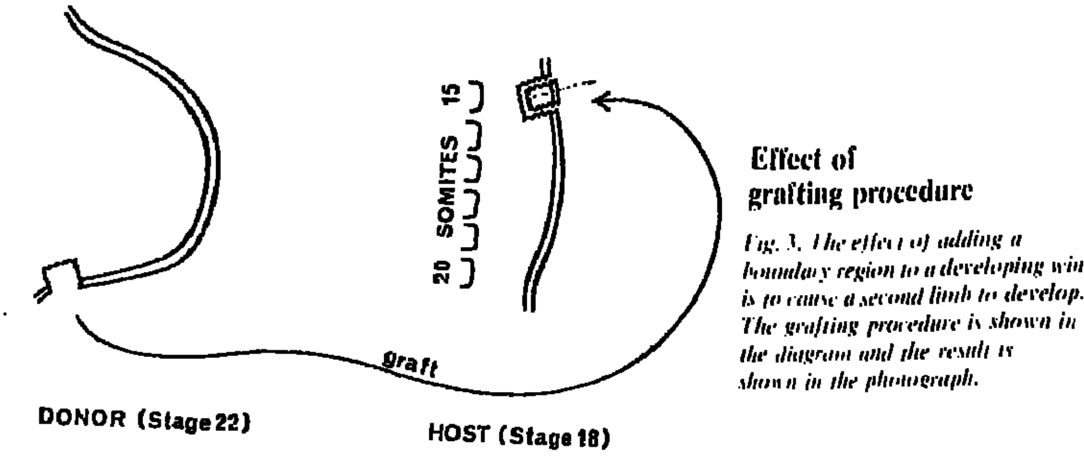

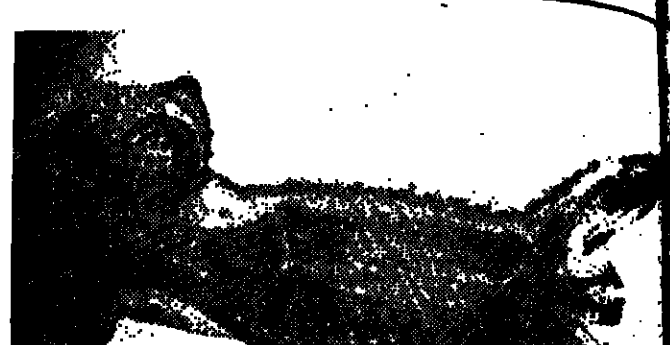

Effect of grafting procedure

Fig. 3. The effect of adding a boundary region to a developing wing is to cause a second limb to develop. The grafting procedure is shown in the diagram and the result is shown in the photograph.

which has biological relevance—is that each cell has its position specified with respect to the ends or boundaries of the line, and that it uses this positional information to decide whether to be blue, white or red. The cells are said to interpret the positional information in a particular way, and the way they interpret it will largely depend on the genetic constitution of the cells. One way in which positional information might be specified could involve a numbering from the boundaries or ends, and the rules for interpretation would be related to which third of the line a cell was in: if position in the line is known, it is no problem to calculate which third a cell is in.

I have suggested that the specification of positional information and its subsequent interpretation is one of the main ways patterns develop. In addition, I hope that the mechanism cells use for signalling positional information might be universal and that the differences between patterns simply lies in the interpretation of the positional information. For example, if one goes to two dimensions one can use the same positional information to form the French Flag, the Union Jack or the Stars and Stripes. The positional information would provide a coordinate system, like the grid lines on a map, and the flag formed would depend on how the cells interpreted their position. This type of mechanism could give rise to an enormous variety of patterns which will depend on the interpretation and thus the genetic constitution of the cells.

We can thus begin to see how genes and patterns may be linked by the coordinate system provided by positional information. Attractive as I find this possibility, I must emphasize that it is by no means generally accepted. We remain profoundly ignorant of most of the processes involved and a great deal of work remains to be done. The encouraging part is that the same general principles seem to apply equally well to hydroids, insects, sea urchins and vertebrate limbs. This makes sense, since I cannot imagine nature to have designed marvellously simple and universal systems for genetics and protein synthesis without also having equally universal systems for expressing the genetic information in pattern and form. For that is what genetics is for.

The problems we are confronted with are seen again in limb development. In terms of positional information there must be a coordinate system which the cells can interpret in the early development of the limb, for example, differentiating into cartilage cells. We do not know how the positional information is specified. One feature that slightly simplifies the problem is that the distances over which positional information need be set up are relatively small: not greater than about 100 cells or 1 to 2 mm. Work on insects by Peter Lawrence and Francis Crick at Cambridge strongly suggests that positional information might be provided by a gradient in a diffusible substance made at the boundary, the concentration of the substance providing positional information.

A rather different type of mechanism involving signalling has been suggested by Brian Goodwin of the University of Sussex and Morrel Cohen of the University of Chicago. This mechanism, sometimes helpfully called the clap of lightning model, rather than its true title, the phase-shift model, makes use of two signals originating from the boundary cells. The signals are propagated at different speeds and, like lightning and thunder, the delay after the arrival of the first and before the second arrives can tell a cell how far it is from the boundary. It is important that both signalling and diffusion type models make it necessary to assign rather special properties to the boundary cells. It seems that one of the boundary regions in the chick limb is near the armpit, because, if this is grafted as in fig. 3 then, as was originally discovered by John Saunders from the University of New York at Albany, and confirmed by Dennis Summerbell in our Department, a second limb tends to develop. This grafted region can be thought of as a boundary region which sets up a new coordinate system.

In emphasizing that a cell's interpretation of positional information is determined by its genetic constitution, I have omitted a very important aspect of pattern formation: a cell's developmental history can profoundly alter its behaviour and interpretation. A rather nice example of this, which also illustrates the concept of positional information, comes from an experiment of John Saunders. If a piece of presumptive thigh tissue from the early leg bud of a chick is placed at th the developing wing bud, it according to position and d mental history—it become In earlier development the the future leg and wing have different. They respond to po information in different wa when a piece of presump tissue is placed at the end developing wing, it become

If what I am suggesting is and there are universal mech then if the molecular basis covered in one system, for e insects, it would provide the many others. This is an possibility. However in th account of the development tern and form I have left ou important aspects of the probl is important for the reader to this and also that I avidly pur prejudice that there are simp universal mechanisms invol adopting, on occasion, a Procrustean treatment of the comfort myself with an apho Francis Crick: one should no get a theory to fit all the fact some of them are bound wrong.

Progress or Decadence?

At times sex itself has seemed a deviation. Provided the wife thought of England during intercourse she was doing her duty, but any suggestion that she was mixing that duty with pleasure was not quite nice. Today, pace Lady Birdwood and Mrs. Whitehouse, it's rather different. Aided by such authorities as Dr. Eustace Chesser*, social attitudes towards sex have become progressive or decadent depending on your prejudice. Such curiosities as foot fetishism, the electric dildo, and rubber knickers scarcely excite interest. The news that the Chagga of Tanganyika have sex ten times a night or that the Thonga of Mozambique perform nightly with three or four different wives, is more likely to arouse admiration than horror.
Rape, murder, offences against children still rightly merit opprobrium, but our attitude towards the consenting adult has changed. The policeman is gradually being removed from the bedroom, a circumstance which implies no revision of attitude towards the Boston strangler or the Dusseldorf sadist, but a deal more compassion towards men like Sir Hector MacDonald, Sir Roger Casement or Oscar Wilde. All victims of the non-permissive society.

Taurus

*The Human Aspects of Sexual Deviation; Jarrolds £2.25 & Arrow Paperback 40p**

To the Editor

Casebooks

Sir,—Your reviewer (April 30) is very worried that Macmillan "Casebooks" and similar ventures will reduce the time students devote to reading the original literature. In my view, they have exactly the opposite effect.

I, too, think the quantity of literary criticism now published is excessive. It is impossible for university teachers to read all this critical verbiage; Casebooks draw our attention to the essentials. They perform the same function for students, who need not waste time on junk, but can quickly discover the two or three articles that matter. Casebooks include diverse points of view and so stimulate the student to develop an independent opinion.

Your reviewer appears to doubt whether criticism can ever help the student's natural responses. I remember an occasion when as a first-year student a few paragraphs suddenly illuminated for me the nature of metaphysical wit. Surely such experiences are common.

C. B. COX.

20 Park Gates Drive, Cheadle Hulme,
Cheadle, Cheshire.

Unesco Conference

Sir,—I read with interest and pleasure the very just account of Unesco's conference of cultural editors (Commentary, April 30). I attended this three-day conversation as one of three British editors. May I offer one observation upon it which may be of some interest and even of some importance?

The Unesco officials who prepared a tentative ground-plan for our discussions are an impressively intelligent and articulate group, and your commentator is right in pointing out that we journalists should be grateful to them for making the occasion not only possible but fruitful. Nevertheless they are all, I think, professional intellectuals, and their headquarters in the Place Fontenoy perhaps inevitably something of an ivory tower.

Or so it would seem, since their preparation had been based on two premises: one, that there has been, in Europe, a "cultural explosion"; the other, that traditional values have been completely overthrown. The journalists, however, were virtually unanimous in rejecting both propositions: the second wholly; the first while agreeing that there has been a marked cultural expansion.

I am not concerned here to argue which group is right. The intellectuals may be thought to command a deeper insight into the underlying pressures shaping the future. The journalists may be thought to be more effectively aware of the true state of feeling and opinion over the full spectrum of educated opinion.

What is not in doubt is the very considerable gap between the two points of view; and I should like to suggest, to your readers in particular, all over the world, that it should be closed—by the substitution of a common purpose for the prevailing climate of suspicion and impatience on the one hand, ill-concealed contempt on the other.

Who knows, we might thus one of these days work our way back to a homogenous, cross-fertilizing culture.

J. W. LAMBERT.

The Sunday Times, Thomson House,
200 Gray's Inn Road, London, W.C.1.

'Poets in this War'

Sir,—In presenting his own theories of Second World War poetry in his letter of April 30, Mr. Currey consistently misconstrues a number of Keith Douglas's remarks. Douglas's essay (April 23) did not say that "all a modern poet could write of war was tautological" but that "almost all a modern poet on active service" is inspired to write would be so. Similarly, when Douglas asserted that mobility was the only new element in this war, he said so "from a soldier's point of view"; and he did not claim that "a poet of the Second World War" could not say anything new about war, but that "the soldiers" had not found anything new to say and needed time to do so.

The whole emphasis of Douglas's essay rests on the situation of the soldier-poet with "sustained first-hand experience of battle", and his contention is that you cannot expect poetry in the tradition of Owen, Sassoon and Rosenberg from poets without this experience. One may disagree with Douglas's tendency to dismiss the poetry he had read on his travels between 1939 and 1943, and, one may reject his view, reaffirmed in *Alamein to Zem Zem*, that "whatever changes in the nature of warfare, the battlefield is the simple, central stage of the war": but there is nothing in the British poetry of that war to disprove his basic contentions. Can we try to define the nature of the war's poetry, without considering that Roy Fuller, Roy Campbell, F. T. Prince and Henry Reed had virtually no experience of action? Can we usefully ignore the fact that Keyes, Lewis and Allison all died within weeks of reaching the Front?

Within four months of his essay Douglas had proved the validity of its conclusion, though he telescoped its time-scale, by writing the body of war poems on which his reputation rests. It is a travesty of this achievement to suggest that it was a poetry "halfway" towards Mr. Currey's new poetry of remote-control killing; and to see it as an extension of Owen's compassion is thoroughly to misunderstand the direction Douglas took. He broke from the "tautology" of his experience by writing of the relationship between the "looking-glass" world of the battlefield and the ostensibly "normal" world outside it. Why this was to remain an achievement unique to the British poetry of the war is perhaps most usefully understood by a careful reading of his essay.

DESMOND GRAHAM.

Giggleswick, Yorkshire.

Sir,—Keith Douglas's posthumous article, "Poets in this War", which appeared in the *TLS* (April 23) is interesting. But the poet who "arose . . . to the sound of wheels crunching the bones of a man scarcely dead" was Isaac Rosenberg, not Wilfred Owen. The lines referred to by Douglas must be the following from "Dead Man's Dump":

So we crashed round the bend.
We heard his weak scream,
We heard his very last sound,
And our wheels grazed his dead face.

This error is understandable, since Keith Douglas might not have had access to the requisite works while he was serving in the Middle East.

Also, from Owen's *Collected Letters* (edited by Harold Owen and John Bell, 1967) we now know that Owen wrote very little about "experiences while . . . enduring them". He was in England from June, 1917, until August, 1918, recovering from his war experience, not being returned to the Front for fifteen months. During this period in England he wrote the majority of his great war poems.

JENNIFER BREEN.

1 The Mount, London, N.W.3.

'Abortion La Reformed'

Sir,—Your review of Abort *Reformed* by Madeleine Si Keith Hindell (April 30) con "at some time in the futu glandins are likely to render thankfully, obsolete".

There is perhaps some misun ing here. Prostaglandins work ing the uterus to contract and contents, if any, and they seem provide a safe and simple way minating a pregnancy at any st may even be suitable for self-ap in the first few weeks of pre though if they are to be made available to everyone the pro ensuring that they are not used when they will not necessarily so safe, has yet to be solved.

But they certainly are not to render abortions as such only the present methods used curing them—rather as the electr might be said to have rendered obsolete. And their use other as provided for under the Abor 1967, on a certificate given by tered medical practitioners and N.H.S. hospital or other approv would undoubtedly be illegal present law.

C. B. GOODH

Gonville and Caius Colle
bridge CB2 1TA.

'Research i Progress'

Sir,—This letter is addressed you, to our colleagues who teach universities of Great Britain, Ireland, and Eire and who are in original work in English and We know that the great maj them received the invitation them some weeks ago to material for a survey of rese these two fields of study, and large number (well over one th who have already completed our thanks and the assurance survey will appear, as promised autumn. It is clear, however coincidence of the postal str our circularization led to de confusion and in particular in the terminal date of March receipt of replies. We have no extended the time available I and hope by that date to those who wish to be included survey but who for any reas not already replied. Any colle have a copy of the question- ch was dispatched through departments, except at Oxford bridge, where it was sent to individually) may reply by ing the following information: full, appointment held, specify- ment and university (and in- if this will be different in Oct- and subject or subjects of work in progress. Replies be sent to "Research in Progress" the address given below.

S. T. BINDOFF.
J. T. BOULTON.

Press, 1A Montagu Mews
ndon, W.1.

ding the Storm'

his discussion of Harold *Riding the Storm* your reviewer refers ged leak about the alteration the Bank Rate in 1957 and "the underlying matter of principle" in this case was undesirability of having of the Bank of England who it 'makes sense' to behave anti-British way for purposes ".

disgraceful that this allusion ll be made and even more al and indeed ridiculous that be elevated into an under- nciple. The whole matter is set out in the Proceedings of unal and Minutes of Evidence fore the Tribunal of December and in the Tribunal's conclu- your readers will look at the , or even simply at the para- (1950) from which your re- phrases were directly taken, well conclude that those look more account of the interest than was warranted dist interests of their shareholders, and that they took action only reluctantly, to avoid loss and not to win profit. Of course despite the complete vindications pronounced by the tribunal it can be argued that there are disadvantages in having outside directors at the Bank of England: but that is not the point drawn out by your reviewer.

D. C. DAMANT.

36 Regent Street, Cambridge.

✱ Our reviewer writes:—In a leading article on the report of the Tribunal, *The Times* described the words in question as "a very ill-judged phrase". It also said that "this unhappy sentence was in truth doubly wrong"; and it went on to argue that either the statement was erroneous or the action which it described should never have been taken. I agree; and I do not think that to say it was done "to avoid loss and not to win profit" makes it any less a matter of principle. It was not, of course, the only point of principle which Mr. Macmillan's light-hearted account ignored

Shaw's Politics

Sir,—I write briefly in reply to Allan Chappelow's generously long response (April 23) to my letter of February 26.

May I begin by saying how eagerly I concur with many of the opinions expressed by Mr. Chappelow in the course of his letter? For example, Socialist Realism *is* often tedious, and honest men should *not* be shot for arriving late at their place of work. When we are in agreement about these larger issues, it is a pity that we should have to disagree about a matter of simple fact—though fortunate that the fact is there to be examined dispassionately. Shaw wrote the following:

> This concerns the LABOUR MONTHLY to the extent only that if I were its editor I should bear in mind certain facts that are too gross for Mr. Palme Dutt's more-than-English subtlety of mind and aptitude for metaphysical generalization. For instance, that men are so constituted that they will work 12 hours a day, and pay monstrous rents out of their sweated wages if only they may think and say what they like in the rest of their time, rather than work eight hours a day for higher wages under complete State regulation of their lives and thoughts.

In his letter, Mr. Chappelow insists that he prints all of this, as part of his extract from the piece, on page 314 of *Shaw—"The Chucker-Out"*; but anyone with a copy of the book who turns to that page will find the following:

> Writing in the *Labour Monthly*, July, 1941, Shaw could not understand, and thought it could not really be the case that:—". . . men are so constituted that they will work twelve hours a day, and pay monstrous rents out of their sweated wages if only they may think and say what they like in the rest of their time, rather than work eight hours a day for higher wages *under complete State regulation of their lives and thoughts.*"

With reference to these two quotations, which I repeat from my first letter, Mr. Chappelow has told *TLS* readers emphatically:

> I stand entirely by what I wrote, and feel bound to point out that all the misrepresentation is on his side, not mine. . . . In fact, I do *not* violate the quoted paragraph (though Mr. Redmond does in his letter, as I shall come to show) . . . . Now to Mr. Redmond's major misrepresentation of Shaw's views in the "crucial paragraph", and of my comment on them. As a result of misquoting us both he misunderstands us both. . . .

Of the eighteen paragraphs in Mr. Chappelow's letter, there is a section of one paragraph which is directly relevant to the point in question, and that is a blank negation of the simple, verifiable truth:

> On page 314 comes the . . . passage from Shaw's letter which I quoted fully but Mr. Redmond quotes in a chopped and misleading form. Shaw warned the Editor, Palme Dutt, to bear in mind a fact that his "more than English subtlety of mind and aptitude for metaphysical generalisation" had blinded him to: "For instance, that men are so constituted that they will work 12 hours a day and pay monstrous rents out of their sweated wages if only they may think and say what they like in the rest of their time, rather than work eight hours a day for higher wages under complete State regulation of their lives and thought."

Obviously there is no scope here for honest difference of opinion. One of us is right and the other is wilfully wrong. It is not a question of which of us has the greater knowledge or understanding of Shaw's political thinking. It is a simple matter of fact about a specific passage on page 314 of *Shaw—"The Chucker-Out"*. In my opinion, Mr. Chappelow's *TLS* account of how he quoted the "crucial paragraph" in his book is thoroughly wrong—not just misleading, not in any way ambiguous, but thoroughly wrong. The difference between the version he offers in his *TLS* letter (where Shaw's punctuation and spelling are changed, but not his basic meaning) and the version offered on page 314 of the book is the difference that matters.

I should like to repeat that I regard this whole issue as being important only because *Shaw—"The Chucker-Out"* is a useful book in an area where good books are scarce. It will continue to be consulted for the considerable amount of interesting material which it brings to light. If the page in question is left unaltered in future reprints of the book, it will be a sad—and strange—disappointment.

JAMES REDMOND.

Westfield College, London, N.W.3.

Johnson's Rambler

Sir,—May I add to my letter (April 30) that "Borrichius" is not only correctly printed in Scott Elledge's *Eighteenth-Century Critical Essays* (1961), but also identified in the commentary to the *Rambler* essays in that edition? The Yale editors' apparent failure to consult this standard modern work adds further confirmation to your reviewer's statement (in what seems to me an excellent and important review) that they had taken too little account of the work of previous commentators.

C. J. RAWSON.

School of Literature, University of
Warwick, Coventry, Warwickshire.

'Church, State and Schools in Britain'

Sir,—May I correct an error in the review of James Murphy's *Church, State and Schools in Britain 1800-1970* (April 2). The book appears in the "Students Library of Education", published by Routledge, of the history section of which I am editor, but it is an "important contribution" from the Department of Education of the University of Liverpool, not that of Leicester.

BRIAN SIMON.

University of Leicester.

'Ruskin's Notes on Carlyle'

Sir,—May I add to the discussion of "Ruskin's Notes on Carlyle", by Roger Fulford, on April 16? Three letters Ruskin wrote to Charles Eliot Norton in June, 1889, and planned to use defending Froude against Norton's criticism of his editing of the Carlyle manuscripts have been published in *The Froude-Ruskin Friendship* by Helen Gill Viljoen (New York: Pageant Press, 1966). Although Norton burnt the original letters, Ruskin apparently had copies printed for *Dilecta*, but he became too ill to supervise their publication. His corrected galley-proofs are in the Yale University Library. Mrs. Viljoen explains these circumstances in her book, which has never received the attention it deserves and may not be known to some readers interested in her subject.

MARTHA S. VOGELER.

Department of English, California
State College, Fullerton, California
92631, U.S.A.

iss Potter the polisher

LINDER:
y of the Writings of
Potter
ne. £5.

of *Beatrix Potter*, Mar- tells of a hapless critic formidable Mrs. Heelis an appreciation of the Rabbit" books which she the temerity to write and a very dusty answer. new examination of the to the books provides evidence of Beatrix contempt for any urban ad- who were unwise enough to ched the age of puberty or outside the United States. She "one tuppenny-button" for Her only acceptable (outside the United States) shepherds and the black- "I do not care tuppence anybody else's opinion." As . . . !

very existence of Leslie monumental work is evi- that, however much she des- contemporary reactions, Bea- was concerned for her reputation—or was she methodical? Mr. Linder her papers in, for the most meticulous order, and the last of her life seem to have occupied with sorting and them—for whom, if not rity?

ever her opinion of admirers, Potter would have approved author of *A History of the of Beatrix Potter* on at least She respected those who, shepherds, did their jobs with and method, and these are which Mr. Linder exercises at high level. She also loved an and this surely Mr. A professional engineer, devoted the leisure-time of the years to penetrating the the Potter mystery. This he not by recourse to psycho- mumbo-jumbo, but by research. His major was in breaking the code in Potter kept a journal and his transcript, 1966 to mark the cen- writer's birth, was a fit- a herculean this he had col- the late W. A. Her- producing *The* which revealed which went to the making of a consummate artist.

Mr. Linder's new book, although it is generously illustrated with examples of Beatrix Potter's work in line and colour, demonstrates her skill as a writer. In writing she developed the same craftsmanship in pursuit of which she drew and redrew her pictures until they reached as close to her ideal as the reprographic process would allow. "I polish! polish! polish!" and the variants which Mr. Linder quotes show how persistent she was, and how ruthless in sacrificing the most delightful of irrelevancies.

If she was tough with herself, she did not spare her publisher. From her first contacts with Warne's, when she instructed a doubtless amused publisher in the technique and economics of block-making, to the forthright letter in which, twelve years later, she condemns timidity towards the public while defending *Mr. Tod* from criticisms which sprang from excessive caution, she showed that she knew her mind with unusual clarity and would fight fiercely to defend her position and to protect her rights. Mr. Linder quotes an exchange of letters between Beatrix Potter and the Anglo-German publisher Nister long before she had started on her "Peter Rabbit" books. Nister's tried to drive a hard bargain, playing down the appeal of Beatrix Potter's drawings—"People do not want frogs now"—and wriggling as desperately as a minnow on Mr. Jeremy Fisher's hook in an attempt to avoid paying the full fee. They were no match for a Potter with generations of Lancashire business-folk behind her, and Miss Potter got her 22s. 6d.

This book blows sky-high the myth of Beatrix Potter as a poor little rich girl. Only once in the quoted correspondence does she hint at domestic difficulties. Regretting that she cannot accept Norman Warne's invitation to Surbiton to draw Winifred Warne's doll's house for *The Tale of Two Bad Mice*, she writes: "I hardly ever go out, and my mother is so exacting I had not enough spirit to say anything about it." For her wealthy and important papa she shows, as she does in the Journals, an amused affection. Discussing the terms for *Peter Rabbit* with Warne's she adds a postscript: "If my father happens to insist on going with me to see the agreement, would you please not mind him very much, if he is *fidgety* about things." All the evidence shows that, however narrow the life of a daughter of a wealthy middle-class family might be, superficially, a strong-minded, highly individual young woman would have her way in the end and would be content with nothing less than a rich, varied, and rewarding life.

This, however, is only incidentally a biographical study, nor does it enter into a critical appreciation of the books, except by inference. It is a most detailed and careful examination of the provenance of Beatrix Potter's written work, and a valuable contribution to the bibliography of her published books. Beatrix Potter is the darling of the collector for her books were issued with many variants of text and binding, and Mr. Linder records them fully.

There are no unexpected "finds". The fugitive pieces and the unused texts, now published for the first time, are of great interest for their illumination of the complex character of their author, but they have no particular intrinsic merit. The best are perhaps three pieces on country life and traditions submitted to, and rejected by, *Country Life*. The greatest value of the book is its illumination of the making of the twenty-four books in the established canon of Beatrix Potter's work. The picture-letters containing the germs of many of the stories are all reproduced in facsimile. All the miniature letters, which Beatrix Potter wrote for the pleasure of children whom she knew personally or by correspondence, are transcribed. They show the often disconcertingly brusque writer at her most humorous and her most human.

As any visitor to Near Sawrey will know, Beatrix Potter's books are strongly topographical. Mr. Linder has sought out the background settings diligently, and Miss Enid Linder's colour photographs of these—mostly a trifle over-exposed—are included. It is heartening to see how little the settings have changed, thanks largely to the careful work of the National Trust, which has thus repaid fittingly the efforts of one of its most devoted and energetic benefactors.

With the publication of this massive compilation, Beatrix Potter becomes almost the best documented writer of the century. This is a labour of love and of scholarship; it is also both a tribute to, and in some measure an explanation of, her perennial charm.

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First the text, then the context

JEAN STAROBINSKI:
La Relation critique
344pp. Paris: Gallimard. 23fr

The so-called "new critics" form no more homogeneous a group in France than do the "new novelists". Nevertheless, although they vary considerably in their response to Marxism, psychoanalysis, structuralism or linguistics, all base their writings on assumptions which exclude anything in the nature of traditional literary history. Again, despite their differences, they owe some kind of common debt to Existentialism and phenomenology, particularly in the sense in which these ideas have received philosophical and critical formulation in Germany.

In these circumstances it is not surprising that the "Swiss School" should have played a central role in opening up new paths for French literary criticism. For some considerable time now Swiss universities have been transmitting German intellectual innovation to their French neighbours. In keeping with this fact, we may note that Albert Béguin, Marcel Raymond, Jean Rousset and Jean Starobinski are all Swiss by birth and either teach or have taught in Swiss universities. Georges Poulet, a pioneer of the "new criticism" and a Belgian by birth, has taught in Zürich since 1957.

Of the numerous "new critics" whose work has appeared since 1945, Starobinski is one of the most impressive. The breadth and generosity of his critical approach, together with its analytical subtlety and clear formulations, make him less doctrinaire than Roland Barthes, less extreme than Charles Mauron or J. P. Weber, less opaque than Maurice Blanchot. In particular, the opening essay of the present volume, which gives its title to the whole collection, is an impressive statement of his methods and aims. It concludes with a characteristic claim for both "rigueur méthodologique (liée aux techniques et à leurs procédés vérifiables)" and "disponibilité réflexive (libre de toute astreinte systématique)".

In the service of these ends Starobinski emphasizes the need to consider carefully the relevance to literary criticism of all disciplines "qui ont reçu droit de cité parmi les sciences humaines". At the same time, he argues that such disciplines (for instance, sociology or psychoanalysis) must not be *imposed* on literary works. In the relations between sociology and modern literature, for example, it is essential to recognize that the "language" of literature and the "language" of the society in which it appears are not co-extensive, not part of the same *logos*. On the contrary, literary works from *Le Rouge et le noir* to *L'Etranger*, or from the poetry of Baudelaire to that of René Char, are forms of refusal and opposition. Yet they possess this very status thanks to an organic coherence and structure which only take on a differential quality when placed against an earlier literary tradition or a surrounding set of divergent social or philosophical assumptions. Starobinski's "rigueur méthodologique" is therefore a probing analysis of the internal configuration of a work. His "disponibilité réflexive" is a *subsequent* (and therefore more soundly-based) movement from the specificity of the work to the generality of those historical and intellectual conditions which surround it.

The actual working-out of this double approach can be assessed in Starobinski's lengthy analysis and interpretation of the "Dîner de Turin" episode in Part Three of Rousseau's *Confessions*. It is both ingenious and illuminating, and is accompanied by an analysis of the nature of autobiographical writing within which the different roles of the memoir, the diary and the confession are defined. Starobinski looks again at the old distinction between the "writing self" and the "self written about" and argues on behalf of their ultimate interdependence and unity:

> C'est parce que le moi révolu est *différent* du *je* actuel, que ce dernier peut vraiment s'affirmer dans toutes ses *prérogatives*. Il ne racontera pas seulement ce qui lui est advenu en un *autre* temps, mais surtout comment, d'*autre* qu'il était, il est devenu lui-même.

The central section of *La Relation critique* contains four essays on aspects of the imagination in relation to literature. They counterbalance, in an interesting and fruitful way, the predominantly rationalistic tone of the first section. Finally, in three concluding essays, Starobinski turns to a consideration of psychoanalysis and literature. Although by no means hostile to psychoanalysis, he emphasizes the metaphorical, even mythopoeic, nature of the language it uses. It claims to bring a conscious, rational, discursive vocabulary to the study of the unconscious, the irrational, the non-discursive; yet its terms are not quantifiable and "la seule référence possible est l'expérience 'clinique', toujours unique, non réductible aux coordonnées d'un diagramme".

To this extent the language of psychoanalysis resembles that of the literary work. Nevertheless, literature has suffered a good deal of "aggression" at the hands of psychoanalysts who see it either as a form of substitution and compensation—an illusory object replacing the real object which the writer has

failed to attain—or as a re
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In practice, psychoanal
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Starobinski does not
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Early verdicts on Spenser

R. M. CUMMINGS (Editor):
Spenser: The Critical Heritage
355pp. Routledge and Kegan Paul. £4.

The inclusion of a volume on Spenser in the "Critical Heritage" series provides a partial substitute for the long-promised but still unpublished *Spenser Allusion Book*, as well as illustrating the foundations of Spenser's fame. The passages here collected run from the comments by E. K. which accompanied the first publication of *The Shepheardes Calendar* in 1579 to those of John Hughes in his edition of Spenser's *Works* in 1715. They are arranged in three chronological sections—1579-1600, 1600-1660, 1660-1715—followed by a section on "Language and Style", and one of "Biographical Notes". There is no lack of material for a second volume, since Spenser has always been admired by those with any taste for the poetic qualities of English: that is why, to Charles Lamb, he was the poets' poet. Gibbon kept *The Faerie Queene* by him while he was writing *The Decline and Fall*, and the Romantic poets not only wrote their earliest verses in Spenser's stanza but chose it for such major poems as *Childe Harold*, *The Eve of St. Agnes* and *Adonais*. Spenser's genius has always, in contrast to Milton's, been a liberating influence, as Keats's experience proves.

At first, however, Spenser's preference for the English model of Chaucer to the Latin model of Virgil perplexed those who were eager for an English poet to claim his place alongside the great poets of antiquity, and they did not see that Spenser's constant, discreet reminders of Chaucer's achievement were intended to answer those who considered that English was not a fit vehicle for imaginative writing. (It was as if he said: "You already have an English poet whose greatness you recognize: there is no case to argue.") But Spenser also accepted Virgilian precedent in publishing first a collection of pastoral eclogues, a procedure much recommended to young poets in the sixteenth century. *The Shepheardes Calendar* announced the arrival of a poet who aspired to be the English Virgil, and he did not have to wait long before the title was conferred. But, perhaps because *The Faerie Queene* is so very unlike the *Aeneid*, appreciation of the heroic poem lagged behind that of the pastorals, and when it did come there was, as Mr. Cummings points out, a tendency to class Spenser with his Italian predecessors rather than with the poets of the classical past. If this still persists in our own day, it is perhaps no more than a recognition that at times Spenser approached Virgil through Tasso, as we may approach Spenser through Tennyson or Keats.

This collection of critical views enables the reader of the present day to understand how Spenser's earliest readers approached his poetry—which is of more than historical interest, for they shared with him many opinions on pastoral and heroic poetry which are als
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Holmes truths

TREVOR H. HALL
The Late Mr. Sherlock Holmes and other Literary Studies.
142pp. Duckworth. £2.10.

The great Sherlock Holmes game, that was started more or less in the 1930s by the late Sydney Roberts, Ronald Knox and others, goes merrily on; and Dr. Hall is today its most elegant exponent. The rules of this game are, or should be, strict: first, that all inferences concerning the private lives of Holmes and Watson must be drawn exclusively from what is called "the canon"—the text of the stories, long and short; secondly, that an urbane tongue-in-cheek parody of scholarly method should be uniformly employed; and finally that, so far as is possible, "the first objective of every aspiring Higher Critic should be to prove . . . that every preceding Higher Critic had little idea what he was talking about".

In his present offering, Dr. Hall has excelled himself by advancing speculations even bolder than those put forward in his *Ten Literary Studies*. He now demonstrates (to his own satisfaction, be it said) that Dr. Watson had no less than five wives; that Holmes's relatively early retirement in 1903 was due to failing eyesight caused by excessive smoking; and that, when not long after the events chronicled in "His Last Bow" he found himself facing total blindness, he destroyed himself.

These are conjectures that will flutter Holmesian dovecotes to some time. The remaining papers deal with such relatively innocuous topics as the contrast between Holmes's alleged asceticism and the epicurean meals in which he so frequently indulged; the dubious claim that he was a learned book-collector; the apocryphal cases unearthed by Adrian Conan Doyle and John Dickson Carr in *The Exploits*; and so on. Dr. Hall, whose footnotery is impeccable, plays the game very prettily, though, for a self-styled "fundamentalist", he is a little too apt to drag in points that are outside the strict canon. There's no doubt, however, that his essays will be avidly seized upon, and as eagerly rejected, by all aficionados. More ordinary mortals will find the book entertaining but—dare one say it?—may feel the *jeu* is getting a trifle *vieux*.

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Molecular iology nd evelopment

HUGH WOODLAND

ent of Zoology, University of Oxford

FORE-MOST problem
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plain the way in which the
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from the rest of the cell,
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first successful experiments of
were performed in the early
J. B. Gurdon, of Oxford
who used nuclei from
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tadpoles. When transplanted
were able to direct
opment of perfectly normal
which thus contained the
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cated by the fact that they were able to breed and produce many normal offspring. More recently, J. B. Gurdon and R. A. Laskey have shown that nuclei taken from skin cells in the web of an adult frog's foot are able to direct the formation of tadpoles containing all the various different types of cell that one might expect after normal development.

It can therefore be concluded that these highly specialized cells contain all the genes necessary to form every sort of cell present in the body, and that these genes have not been permanently inactivated in the donor cells. If it is assumed that these conclusions are valid for other sorts of cell, it must be concluded that cell differentiation depends on regulation of the extent to which the genes of each cell are active.

Gene control and the cytoplasm

At this point one might ask when it is that nuclei first behave differently. At the beginning of development there is, of course, only one nucleus, surrounded by a much larger amount of cytoplasm. The disparity in size is well illustrated by the hen's egg, in which the nucleus is about a thousandth of a centimetre in diameter, and the surrounding cytoplasm (the yolk) is several centimetres thick. The initial phase of development, called cleavage, involves rapid division of nucleus and cytoplasm to form many cells. The speed of division is well shown by the frog *Xenopus*, in which the egg divides to form 30,000 cells in the first ten hours after fertilization. It may be shown that genetic activity begins during the last part of cleavage, and is essential for further development to occur. There is also evidence that genes in that part of the embryo which will form the gut are much more active than those elsewhere. So even at this early stage the nuclei show differences, and these differences become more pronounced during the stage of development which immediately follows cleavage.

How is it that these changes in nuclear activity are brought about? We know that the nuclei all contain the same genes, so it seems reasonable that any variations in activity stem from differences in the environment of the genes. The simplest explanation for these differences is that the egg is a heterogeneous structure, containing various regions of cytoplasm capable of promoting different sorts of genetic activity. During cleavage these areas of cytoplasm become restricted within different cells, where they cast different influences upon the incumbent nuclei. There is a considerable amount of evidence that this hypothesis is correct.

A good example is provided by some experiments performed on the embryos of certain molluscs at the end of the last century. In this very favourable material it is possible to remove a particular part of the cytoplasm at the two-cell stage without touching the nuclei. Development proceeds in a nearly normal fashion, but it eventually becomes evident that the animal formed lacks many internal organs. A group of American workers have recently demonstrated that these embryos show abnormalities of gene activity, even at an early stage of development.

Evidence of this general sort indicates that the activation and repression of different genes in different cells results from the controlling influence of the cytoplasm in early development. The cytoplasm must itself be organized at some preceding stage, and there is every indication that it occurs during the growth of the precursor cell to the egg (the oöcyte) in the ovary.

It would therefore seem that to understand early development we must understand the way that the cytoplasm brings about changes in gene activity. This problem is part of the main task of the molecular biologist, which is to understand how genes control the activities of living organisms. The general outline of this process is now understood reasonably well. The genetic information is contained in the molecule deoxyribonucleic acid (D.N.A.) situated in the nuclear chromosomes. D.N.A. is a very long polymer made up of thousands of small sub-units, called nucleotides, arranged in a linear sequence. There are four different sorts of nucleotide, and the basis of the genetic code is that each group of three represents one of the twenty amino acids found in proteins.

It might be thought that such a code would not be able to carry enough information to specify such a complex structure as a man, for the D.N.A. must all be packed into a cell nucleus which is only about a thousandth of a centimetre in diameter. However the information-carrying capacity of this molecule is enormous, as may be shown by the following calculation. When put end to end the D.N.A. molecules of a single human nucleus would be about thirty centimetres long, whereas each nucleotide occupies only about 3.4×10^{-8} centimetres. This article is some 3,000 words long; if we regard each word as equivalent to three nucleotides of D.N.A. (i.e., the biological word for an amino acid), then we would need 100,000 such articles to contain the same number of "words" as the nucleus of a single human cell.

The translation of the genetic code occurs in the cytoplasm rather than the nucleus, so the D.N.A. cannot be translated directly. Instead the code is "transcribed" into many copies of a chemically similar molecule, ribonucleic acid (R.N.A.). These molecules, known as messenger R.N.A., move out of the nucleus and into the cytoplasm, where they are translated into amino acid chains (i.e., proteins). The sequence of amino acids determines the characteristics of the protein thus formed. It may, for instance, make a structural protein, such as collagen, the main component of cartilage, or elastin, which gives tendons their great strength. Or it may make it an enzyme, that is a catalytic molecule which makes a specific chemical reaction occur. A simple example would be the pepsin produced by cells lining the stomach, an enzymic protein which brings about the breakdown of other proteins during digestion of food. It is protein molecules such as these which cause cells to be different, for though cells may differ with respect to other sorts of molecules (e.g., carbohydrates), these other molecules are always synthesized under the direction of enzymic proteins.

It is now possible to rephrase the question, How does the cytoplasm control genetic activity? as, How does the cytoplasm of different cells cause different sequences of D.N.A. to be transcribed into R.N.A., which in its turn is translated into protein? Unfortunately our present knowledge is too inadequate to provide a useful answer. We know most about the control of genetic activity in bacteria but multicellular organisms seem to be rather different. One reason why sequences

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of D.N.A. are inactive in transcription in higher organisms is that proteins are tightly bound on to them. This "gene masking" is found to be different in various types of cells, as we would expect if different genes are active in them. It is not, however, known how these differences in masking are brought about in the living cell.

A similar obscurity surrounds the second step in the information flow from D.N.A. to protein, the translation of the R.N.A. code. This is known to be an important control point in development, as is shown, for example, by the effect of fertilization on the eggs of sea urchins (a favourite material for embryologists). The rate of protein synthesis is very low before fertilization, but it increases abruptly afterwards. It can be shown that this change is not caused by the synthesis of more messenger R.N.A. molecules, for it occurs even when the nucleus (i.e., the genes) is removed from the egg. It is not known how this change is brought about. It may be that some messenger R.NA. molecules are masked, in much the same way as genes are masked, and it is the removal of the masking substance which raises the rate of protein synthesis. It is not certain, though, that translational control does more than affect the rate, rather than the type of protein synthesis. It would help if we knew whether all free messengers in cells are translated at the same rate.

One of the reasons for our ignorance of these phenomena is that we cannot recreate in a test-tube the conditions found in a living cell, since our understanding of the composition of the cell is too incomplete and its structure too complicated. Another is that the situations in which genetic activity changes in whole animals are mostly so complex that they are difficult to analyse experimentally. The study of embryology is, however, making a contribution to our understanding of genetic regulation, partly because embryos provide an opportunity to circumvent the problems just outlined.

First, as embryos develop, their genes change from a state of inactivity to a very high level of activity, or *vice versa*, a situation that is clearly much simpler to investigate than one in which a gene changes from one level of activity to another that is not very different. Secondly, and perhaps more important, embryonic cells are very large at the start of development. It is therefore possible to introduce molecules into them, changing their composition, and then to study any resulting changes in the activity of the cell. In other words, the cell is used as a living test-tube.

Embryos and genetic regulation

There is only room here to consider one example of the sort of contribution embryology is making to the analysis of changes in genetic activity. It concerns genes which direct the formation of a type of R.N.A. known as ribosomal R.N.A. (r.R.N.A.). This molecule is a structural, rather than a messenger R.N.A., and it is a major constituent of small, cottage-loaf-shaped structures found in all cells, known as ribosomes. These are a sort of enormous enzyme, on which occurs the interaction of messenger R.N.A. with the other cell constituents necessary for translation of the genetic code.

The rate of synthesis of r.R.N.A. changes greatly during development, and has been most fully studied in frogs. During growth of the oöcyte in the ovary, r.R.N.A. synthesis is exceptionally rapid, for the mature oöcyte must contain sufficient ribosomes to carry it through early development. Towards the end of oögenesis r.R.N.A. synthesis is greatly reduced, and when the oöcyte matures to become an egg it stops altogether. The r.R.N.A. genes remain inactive during fertilization and cleavage, and are not finally reactivated until the embryo has divided to form about 30,000 cells, when they soon become very highly active.

Such a cycle of changes clearly provides a good opportunity to study genetic regulation. A particularly obvious approach would be to look for genetic repressors during the stages when r.R.N.A. is not synthesized. Such a search has been made, and two molecules with this function isolated. The Italian worker M. Crippa has isolated a protein from the mature oöcyte which inhibits r.R.N.A. synthesis when injected into immature oöcytes, normally very active in r.R.N.A. synthesis. It possesses many other properties expected of an r.R.N.A. synthesis repressor, for example, it binds to purified r.R.N.A. genes, but not to the rest of the D.N.A., and it cannot be isolated from the immature oöcyte.

The Japanese workers K. Yamana and K. Shiokawa have isolated a rather different sort of substance from the cleavage stage, for it is a small molecule rather than a protein, and is probably a nucleotide. In a similar way to the substance found in oöcytes, it inhibits r.R.N.A. synthesis in cells showing this activity, and it occurs only in cells from which this activity is absent. In particular, it remains longer in the endoderm than in other cells, which correlates well with the observation that r.R.N.A. synthesis begins later in the endoderm than elsewhere.

It is not yet understood how the oöcyte and cleavage factors are related to each other, but since they can be tested by their clear biological effects, it should not prove too difficult a problem. The isolation of these ribosomal gene repressors illustrates rather clearly one way in which the clear-cut changes characteristic of embryonic development may be used to attempt a direct approach to the problems of genetic regulation.

Another important conclusion which has been reached from the study of r.R.N.A. synthesis in embryonic cells concerns variation in the number of genes present in a cell. The growing oöcyte of frogs is a large cell, eventually over a millimetre in diameter, but it contains only one nucleus. Originally it was difficult to see how a single nucleus could synthesize the enormous amount of r.R.N.A. stored in the oöcyte for subsequent development, for the ribosomal genes of the oöcyte would seem to be working about 500 times faster than the genes of ordinary adult cells.

Two groups of workers (M. L. Birnstiel and his associates in Edinburgh, and D. D. Brown and his co-workers in Baltimore) were able to explain this problem, because they had at their disposal biochemical methods of determining the actual number of r.R.N.A. genes in the nucleus of a cell. They found that at the beginning of oöcyte growth, these genes are replicated many times over, whereas the other genes remain present in their normal amounts. In fact, the oöcyte nucleus contains about 500 times as many r.R.N.A. genes as the nuclei of normal cells. This discovery of selective gene amplification is obviously of the greatest importance.

The possibility must now be considered that specialized cells contain many more copies of the genes associated with their peculiar functions than do other cells. There may, for example, be selective amplification of the genes coding for haemoglobin in those cells which form red blood cells. Unfortunately we are not in a position to detect such a phenomenon. It might seem that nuclear transplantation would help, but this technique is likely to detect a loss, rather than a superfluity of genes. This problem is being investigated by many groups of scientists, so an answer should soon be forthcoming.

Embryonic cells as test tubes

The techniques used in nuclear transplantation into frogs' eggs have been modified by a number of workers to permit the micro-injection of molecules into living cells. This line of research has been most extensively pursued in Oxford by J. B. Gurdon and his collaborators. The work of Crippa who used their methods, has already been mentioned, but the advantages of this type of experiment are even more clearly illustrated by some very recent, unpublished experiments of Gurdon and C. D. Lane of Oxford University and G. Marbaix of the University of Brussels.

They wished to test whether pure messenger R.N.A. introduced into a living cell is automatically translated, even when the cell does not normally make the particular protein coded by the message. A further problem was that although test-tube assays for messenger R.N.A. have very recently been developed, the translation occurs more inefficiently than in living cells. They were therefore seeking a good method of assaying for messenger R.N.A., as much as studying the relation between living and test-tube systems.

The suspected messenger for haemoglobin was obtained from rabbits and injected into frogs' eggs and oöcytes, and the surprising result obtained was that the oöcytes and eggs were able to translate it, although they do not normally make haemoglobin. Indeed the injected rabbit message stimulated oöcytes to make at least twice as much protein as normally, all of the extra being rabbit haemoglobin. I appears that the messag approximately as well in th cell as it normally wo blood cell.

These experiments free messenger R.N.A in any cell, although the vious dangers in generaliz single sort of experimen more important, they sh technique used provide tremely sensitive test fo R.N.A., and an excellen which to study the cha translational control. almost entirely the mai using test-tube systems, it is impossible to say relation any results obt phenomena occurring in

One of the aims of th been to show that the d molecular biology has new way of looking at cal problems. At prese service has been more phrase questions that ca ered experimentally, tha answers. But it shoul possible for molecular to begin to find out that the activation and of genes leads to the of the various different cells in the body. It pointed out that develop provide a particularly opportunity to study gen tion, a subject of which ignorant. It is therefore to ask the question, wha cular biologists learn fro ogy ?, as to ask what em can learn from molecular

The general reader m wonder what studies of th mean for the world Nuclear transplantation and those involving the substances into developing stimulated frightening pr genetic engineering in hu and its consequences. S tions seem fanciful, for evidence that these experi possible with mammalian they were possible, the time and effort, and the donors necessary to ach cessful experiment eggs, would not make ments practical on a large

It is just conceivable ments of this type migh once or twice by an experimenter, but in term they are not likely more than curiosity value of work described in this more important because how normal cells work, our bodies are construc development. It is vital stand the operation of if we wish to underst happens to diseased or cells, such as those cancers. Similarly, if understand abnormal we need to know exactl genes in each cell of the embryo interact with the ment, what that environ how it is controlled.

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African scourge

BERNARD GLEMSER :
The Long Safari
236pp. Bodley Head. £2.10.

Mr. Glemser gives a vivid and detailed account of the identification and successful treatment of a form of cancer which affects children in a certain belt of African territory. This exercise in geographical pathology makes good reading, and as a piece of deductive logic can rank with Snow's important work on cholera. It is interesting to speculate how far similar methods of investigation might help in the elucidation of other forms of cancer problems. The work of Denis Burkitt and his colleagues in identifying the tumour which is now called after him is described in a fluent and simple way and makes a fascinating story both for professional and lay readers. This book should be studied by all who are interested in cancer research: there must surely be lessons of universal application in the approach of these young workers to what was a surprising new disease.

In addition to the main story, readers will find in *The Long Safari* much that will interest them in the presentation of current work on virus infections, with special reference to Africa, and to the role viruses may play in helping to find a solution to the whole problem of cancer causation and treatment. It is encouraging to know what a large part the study of patients, as opposed to laboratory animals, has played in the identification and discovery of the life history of Burkitt's lymphoma.

Mr. Glemser includes chapters on the other two great medical scourges of Africa—bilharzia and kwashiorkor. The latter is technically preventable, but both still take a large toll in disease and death. This is one of the best books that have appeared for some years in presenting medical facts in an untechnical but accurate fashion. It suffers from the common complaint of lack of an index, which greatly reduces its value as a work of reference.

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rs of this contribution to bsbawm's new "History of Society" series concede, at of their bleak study of the there was more to the "the downward slither and the failure of the left to what more there was rately spelt out. Resist- been set up, we gather, not die in 1939 with the ds of change had been in the social outlook and germinate during and after d World War.

immer at the end of the a relief. Few would accuse ons of under-emphasis as us through the countdown dole, war. And indeed it decade—a real decade for h a definable curve of ent, a doomed rhythm and f more than normal human In one vital respect it was der than they have painted have concentrated on mate- ship and injustice, under- the spiritual and emotional that was the really un- thing. One kind of horror y to a worse. As the pres- sheer physical want lifted, succeeded by an aware- the growing menace of met, so far as official ent, by what looked like paralysis of the will.

ere was another crucial which we—or they, to use the —were luckier then than ow. People, consciously or felt themselves to be less their leaders and this hope, however frustrated. It against the fears and facts of the time: the economic malaise that ment could seem to housing estates eroding community spirit while speculative builders spread their rash over the countryside, giant pubs and cinemas mushrooming in rootless suburbs. Even in the face of all this, and Hitler too, aspiration never quite died. Hope, in a sense, was still a habit, a latent state of mind. History was a hard horse to ride, but at least there were few to doubt that it was going our way.

From this remove it looks a different sort of ride. Now the decade can be seen as a reverse escalator to our own, in some kind of mystery-tour Underground. They were on the down stairway while we—travelling less hopefully, with less idea of where we think we may be going—are on the way up. Equality of sacrifice was almost as hard to achieve on their stairway as equality of increment is on ours, since they were not so far from the days when the comfortably-off had servants in the way that the back-to-back poor had mice—also bugs, as the authors of this book vividly describe.

And if they find any evidence of social betterment, it is the result not of the growth of sixpenny stores and hire-purchase furniture shops but of such developments as the ones they note at the two ends of life—an infant mortality rate lower than had ever been thought possible, and a developing tendency of the old to get together and speak up for their needs. Even the men of Jarrow had the spirit to march, and they knew what they were demonstrating about. The lost factor—the now unknown or forgotten element—was still at large. Can it have been an obstinately surviving belief in rationality and a sense of justice? It was for a later age to notice—though this book gives an inadequate coverage of the cultural front—how so many writers of the time stuck to their glum social realism, how the poets struck embarrassing poses. In the 1930s themselves it was still possible to believe that the people were better than their rulers, their poets, their historians. And so long as it was believed, it was to that extent true.

Joining and deviating

HOWARD S. BECKER :
Sociological Work
358pp. Allen Lane The Penguin Press. £4.90.

The claim made on the jacket and in the preface is correct: these papers are a working-out with respect to method and to substance of the Chicago School's emphasis on the "self" and on its development as implicated in and realized through transactions with others. So far as method is concerned, this approach suggests the importance of unstructured interviewing and participant observation, and Howard S. Becker is concerned to elucidate the problems and logic of such activities. So far as substance is concerned, the Chicago School approach leads to a concern with the way a person is "induced" into a life-style, what interpersonal grips and proffered definitions hold him within it, and what changes may slacken its attraction. Hence the culture of drugs, of crime, of teaching and the professions are salient areas where the subtle ceremonies of induction take place. Professor Becker's obiter dicta concerning these areas do have a serious link.

As college is to student so prison is to criminal. These are studies in secondary socialization and the types of processes which affect the manner by which it is achieved. Some of these processes are highly general, such as whether or not people are inducted in separated, discrete cohorts or in overlapping waves which cumulatively build up their own counter-pattern. Other processes serve to create different varieties of professional persona: how is the strong professional identity of doctors and lawyers achieved, the mobile engineer psychologically differentiated from the constricted physiologist or teacher? Again, how are professionals of any kind held to the required consistency of behaviour . . . through cumulative . . . and mutually supporting "investments" which the participant finds it costly to withdraw from?

The above examples concern the transactions whereby people are drawn into "established" styles. It is part of Professor Becker's basic stance that this process does not differ from that which creates deviants. (Indeed he would add that orthodoxy is that form of behaviour to which only the minority conforms.) Deviance is less a matter of anomie, or neuroticism or broken families or any other of the so-called "causes" of socially disapproved behaviour, than induction into a way of life which maintains its hold like any other, by sustained payoffs. Moreover, many of the aspects of this behaviour that arouse comment belong to its initial stages when the neophyte has not learnt to interpret his new experiences (for instance under drugs) nor been provided with those community supports which enable him to handle them and thereby normalize the abnormal. Deviant behaviour arises by normal processes, albeit operating with a different weight and incidence.

The approach based on interaction and transaction is apt to strike the outsider as one of those insights which can only come to social scientists who have been professionally socialized to ignore common sense. And indeed it *is* common sense to suppose that people develop and change all through their lives and especially through the experiences of professional formation. Unfortunately the professional deformations of the social scientists can be successfully propagated to the point where common sense is too easily rejected. Thus, in some parts of the educated middle class it becomes common sense to talk of the person in terms of needs and drives or to suppose that a person only repeats in later life the themes, rhythms and inflections of early childhood experience. Hence the need to reassert the approach based on interaction.

At one point Professor Becker raises an important question of the new "common sense" which is developing about deviance in society at large and the new militancy of the deviant groups themselves. "Dime-store analysis", committed to just those propositions about the primacy of early childhood which Professor Becker rejects, has helped the public to tolerate deviants as not responsible and the deviants themselves to organize on the ground that society—in the causal if not the moral sense—*is* responsible. One imagines that Professor Becker approves the resulting social attitude while rejecting the pseudo-science on which it rests. Presumably one gain of an "interactionist" approach is to increase our responsibility by extending our consciousness of these universal ceremonies of induction which stylize all our responses. In which case we are *all* both determined and responsible together: the orthodox cannot see the deviants simply as the unhappy consequences of a vicious causal nexus nor the deviants see the orthodox as the robot-like creations of "the system".

The proper study of mankind is sociology, or perhaps the philosophy of the social sciences; if we may take as evidence *The Proper Study*, the fourth volume of Royal Institute of Philosophy Lectures (236pp. Macmillan. £4.90). They are a mixed bag, with something for everyone: an interesting critique of Alasdair MacIntyre's view of moral theory, more of Professor MacKay's logical puzzles about the compatibility of first and third-person analyses of thought and action, and so on.

sses and strata

PARKIN:
uality and Political Order
atification in Capitalist
munist Societies.
MacGibbon and Kee. £2.25.

ed with the presentation of ification in sociological , both classical and current, Parkin is concerned with the ent of an essentially Marx- ative. One says "essen- Marxist, because a stickler ts of Marxism might well Parkin a deviationist, in places his emphasis not on ownership (to which he ingly little attention) but arket.

odern capitalist societies, he the role of the market in rewards via the occupa- order seems crucial to the tification system". In so occupational groupings high in the scale of and symbolic advantages to rank high in the posses- marketable skills". The not only creates a "domi- class but enables it to stay this class, having "greater or control of the various which govern the allocation ends they have members or atives of the subordinate itself determines the rules of

not very original and even theme is devel- with considerable skill, in op- to the ideas of those socio- traditional class, status, and as separate and distinct cate- is placed on the whereby the domi- maintains its privileged position, and there is an excellent discussion of the relationship between the dominant value-system and the various subordinate value systems that it succeeds, more or less, in incapsulating. Particularly perceptive is Dr. Parkin's treatment of the "patterns and attitudes and beliefs typifying what is sometimes called the working-class or lower-class subculture".

Turning to the record of the social-democratic parties in Western Europe as protagonists of a radical egalitarian alternative to our present class-divided societies, Dr. Parkin finds little to encourage him. Although they appear to have done something to improve "the overall balance of rewards and opportunities" by facilitating social mobility, they have done little or nothing to "redistribute material rewards in an egalitarian manner". This failure he attributes, in true Leninist manner, to the subtle corruption of their leaders rather than to the bourgeoisification of their supporters. The working class, he holds, might well respond to a radical lead, since "it is much more commonly the case that members of the underclass take their political cues from their party leaders than the reverse".

It would be interesting to see this questionable theory developed at greater length, for, as at present stated, it would seem to depend on the view, for which there is little evidence, that a meritocratic order of society must *per se* be unacceptable to the "underclass", once the members of this class have become conscious or have been made conscious of their own "true" interests.

On the "Problem of Classes in Socialist Society", Dr. Parkin is equally challenging. While recognizing the existence of inequality and even of inherited privilege in the societies of Eastern Europe, he denies, or at least comes near to denying, that they exhibit class-divisions as such. Not only does he maintain that they are less markedly inegalitarian than ours; he awards them superiority in respect of the "extent and range of upward mobility". For full measure, he speaks of their "lack of normative and cultural differentiation"—a very disputable proposition indeed. Although admitting that "perhaps the crucial issue is whether the openness of the system can be maintained in the long run", he certainly gives them the benefit of every possible doubt.

As will have been gathered, this book is an attempt to rehabilitate Marxist sociology in a field which is central to its concepts and interests. While the attempt cannot be described as entirely successful, it is certainly one of the most intelligent efforts of its kind to be made for a long time. Inevitably, in so short a book, there are crudities and loose ends. The crucial distinction between the "dominant class" and the "underclass", for instance, is stated in somewhat simplistic terms; the use of statistics tends to be somewhat selective; and there are some highly questionable assumptions, which are never brought fully into the open, about the nature of class "interests". Nevertheless, no student of society can read *Class Inequality and Political Order* without being forced to do some fresh thinking, and no one can fail to *enjoy* reading it: for it is excellently written, without any of the unnecessary jargon that so often disfigures works of this kind.

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Large but few

SYLVIA K. SIKES:
The Natural History of the African Elephant
397pp. Weidenfeld and Nicolson. £10

Elephants are the largest of all terrestrial vertebrates. The prehensile trunk is unique and spectacular, the ivory has been prized since remote times, the domestication of such huge beasts was achieved by men of the earliest Egyptian dynasties, and the mechanical and physiological problems associated with their huge bulk have prompted speculation at all levels, from myth-making to zoology. Aristotle personally dissected an African elephant and has much to say on the training and capture of these animals.

One would imagine, therefore, that only minor aspects of elephant natural history remain to be filled in, but in zoology it is often the largest animals that are the least well known. Thus, when Sylvia Sikes began her studies on the African elephant she could find no up-to-date source-book on the biology of this species. Mammalogists are now very much in her debt, for she decided that she would write the book that she could not find and few people are as qualified as she for this task. By a fruitful combination of field studies and museum work she has reviewed the literature, added her own observations and produced what for many years will be a standard work on this species.

The Proboscidea is a fairly recently evolved order of mammals, dating from the Eocene, but in 40 million years its ranks have been sadly depleted. Only the family Elephantidae remains, and with the extinction of the Woolly Mammoth, the Straight-tusked Elephant and perhaps the last of the Mastodons in prehistoric times, we are left with the two monotypic genera, *Elephas* of India and *Loxodon* of Africa.

Nowadays there are probably fewer elephants in Africa than ever before and their range, which once stretched north to the Atlas Mountains and the Mediterranean coastlands, has so shrunk that a modern Hannibal would have to press on well south of the Sahara in order to marshal his "cavalry". Sylvia Sikes, however, shows that within and around protected areas the elephants have formed non-migratory populations which have often increased beyond the carrying capacity of the land (or the recovery rate of the vegetation). Outside such areas the elephant populations are declining and the author thinks it "extremely questionable whether modern Africa really has room for completely wild elephants outside of national parks". As a good biologist, she recognizes the part played by her own species in the ecology of elephants and in particular the damaging effects of colonial policy (which in retrospect seems to have understood as little of elephant as it did of human sociology).

The author's serious consideration of the beliefs of natives and hunters, culminating in a brilliant assessment of Job's Behemoth, can only stem from a very deep knowledge of her subject. The chapters on the anatomy and physiology of the African elephant, with references to relevant work on the Indian elephant, are excellent summaries of recent work (including her own studies) and they justify some of the more speculative statements made elsewhere. On the subject of musth, she reaches no definite conclusion but stresses that there are clearly situations other than courtship in which the temporal glands exude their odiferous and somewhat sticky fluid, the exudate serving in territorial marking, in herd-member recognition and in aspects of behaviour including mating. Perhaps the most important of the original ideas in this book is Dr. Sikes's ingenious method of using the *foramen mentale* of the lower jaw as a fixed point against which the progression of the molar teeth can be measured; this provides by far the most accurate method yet devised for aging elephants in the wild, at least until the age of thirty.

This account of the African elephant is technical but not unnecessarily so, readable but without resort to that journalistic style so prevalent in modern natural history books. The author sets out by asking the question: is the African elephant important today and if so, then why and to whom is it important? Her answers are, perhaps, predictable and primarily aimed at the loxodontologist, but this is undoubtedly an important book and one that will leave its mark well outside its own field, especially in the wider context of conservation.

A class and its species

L. HARRISON MATTHEWS:
The Life of Mammals
Volume 1: 340pp. £3.
Volume 2: 440pp. £4.25.
Weidenfeld and Nicolson.

Weidenfeld and Nicolson have now published some twenty titles in their "World Naturalist" and "Natural History" series. Taken together—for the distinction between the two series is obscure—these books include some of the best popular studies of their subjects to be produced in this country, which is perhaps not surprising when one considers the very eminent authors: J. D. Bernal, A. S. Romer, V. B. Wigglesworth and J. Gray for example. The publishers have cast their net in the general direction of the intelligent sixth-former upwards to the specialist in some related field, with a mid-point at the university student and interested adult level. The actual standard achieved, however, has varied considerably; and while some volumes are ready sources for neatly summarized facts, others have far less of the textbook about them. In the *Life of Mammals*, L. Harrison Matthews seems to have aimed too low for the target that both he and the subject deserve.

Let it be said immediately that the *Life of Mammals* is readable, entertaining and instructive; it is arranged in a thoughtful manner; and it suffers from no more than the usual flaws that must mark any review of a large subject. What the author fails to achieve is that delicate balance between detail and overall structure that enables the reader both to read the book with pleasure and to use it subsequently for reference. There is no attempt to tabulate data; there are no family trees to lighten the classification and evolution of the mammals; and the anatomical diagrams are simplicity itself, virtually unsullied by lettering or arrows. Yet, whatever relief the general reader might feel at escaping from cluttered figures, stark phylogenies and columns of numbers, he will soon acknowledge their usefulness in a text that wanders from order to order in the first volume and from subject to subject in the second. Even with the exclusion of the Primates (already dealt with by A. H. Schultz), the scope of the book is enormous; and while one must congratulate anyone on tackling it, the result inevitably holds some disappointments.

The first volume contains an account of the internal features of mammals, grouped as terrestrial, aquatic and aerial creatures that have solved particular problems, especially that of locomotion. This is preceded by three chapters on the evolution and general features of mammals, and is succeeded by chapters on external features (skin, hair, hooves, claws, &c.), the brain and sensory systems (a trifle superficial), behaviour, reproduction, populations, migrations and hibernation. Finally, there is an account of man's relationships with mammals, ranging from domestication, exploitation and conservation to mythology and art.

The initial roll-call in this first volume (following G. G. Simpson's classification of the mammals) is the framework for the second volume, which is a systematic review of all the orders and families, with at least some mention of almost all the genera into which the 4,200 species of mammals are placed. Under family headings are discussed the main features, habits, distribution and principal members of the groups, with about twenty or thirty pages devoted to each order or group of related orders. The text flows easily, sprinkled with interesting and sometimes ana tions, but some anatom need explanation or a d there is a severe dearth o tions of the animals des it is not always clear particular aspect of ana siology or ethology can be the first volume.

The general explosion literature is equally mammalogy, and must still plod thro journals or risk the tim *Zoological Record*, impo works are bound to be unfortunate omission, how reference to the excelle graph on the African ele Sylvia Sikes (reviewed on th as well as to her earlier fo of the ingenious *forame* method of aging elephan

Similarly, Frith and Ca ful book on the macropod mentioned, although it reinforced the section on Another disappointment tion on aquatic locomotio receives rather brief Gray's Paradox is described named) and the reason swimming speeds can exc lated values is ascribed reduction by chemical mea surface oscillations or d equally plausible solution from Osborne Reynold's laminar flow is ignored.

The list of omissions extended, but this does no from the general soundne material included. The au worked on a wide range of from moles and hyenas to basking sharks; he is also among zoologists as a raconteur. This happy imparted depth but lig touch to a text that might have staggered under the bu its information.

The stuff on the troops

STUART A. ALTMANN and JEANNE ALTMANN:
Baboon Ecology
220pp. University of Chicago Press. £5.40.

In a field in which speculation has at times run rather far ahead of the facts a book that eschews flights of fancy provides a welcome change. *Baboon Ecology* is a solid account of research on yellow baboons in the Amboseli Reserve of Kenya. As such it is representative of current trends in primate fieldwork; a growing precision of method and increasing interest in the relation between the animals' behaviour and their environment. Uncritical disregard for the latter has vitiated many recent attempts to explain human behaviour in terms of that of other animals.

Major chapters are devoted to group composition and dynamics, the use of sleeping sites, daily activity cycles, movements, and range usage, feeding and drinking, and predation. The Altmanns' own findings are compared with those of other baboon studies with extensive and at times excessive quotations from other authors. Theorizing is kept to a minimum, most of it relegated to a final chapter titled, with commendable honesty, "Speculations".

The classic picture of the baboon troop is of a closed social unit. It is now becoming clear that males at least may move from one troop to another several times during their lives, thus ensuring an interchange of genetic material between what would otherwise become highly inbred small populations. The Altmanns document several such changes, and provide valuable information on the behavioural relations between migratory males and other baboons both before leaving their original troop and after becoming accepted in a new one.

There has been much argument about the role of adult male baboons in protecting the troop against predators such as lions, leopards or jackals. Some workers describe males as forming a protective screen around the edge of the troop, with the smaller and more vulnerable females and young in the middle. Others have been unable to discern any such arrangement, and claim that serious danger leads to precipitate flight with males well to the fore and females carrying babies at the rear. This controversy has been fuelled by a scarcity of evidence about how baboons actually react when confronted by predators. The Altmanns observed more than 100 reactions to predators or supposed predators. In some cases the baboons did indeed combine to beat them off, while in others they fled, or alternatively froze and hence escaped detection.

A notable feature of the monograph is the extensive use throughout of numerical and statistical methods. Observations are never accepted uncritically as a representative sample of the animals' behaviour; rather, possible sources of bias are considered, and, where practicable, corrected. Whenever any aspect of the baboons' activities can be described in quantitative terms, this is done; indeed some might feel that such analysis is at times carried to excess. Many of the calculations are less daunting than they appear at first sight, however, and in most cases they illuminate rather than confuse the issue at stake. Excess of statistical zeal is at least an error in the right direction; some past studies have been totally innocent of numerical analysis, and only with such analysis can the findings of different workers validly pared.

In many previous st example, the "home range group, the area of land that over a period of a year or been estimated simply by observed movements on the study area and draw around the outermost po method often leads to the of large areas that the anim use, and fails to distinguish regions that are entered only and ones that are used The Altmanns avoid the culty, at least in part, by lines around the indiv ranges and then sup these. To overcome the divide the range up squares and record the time the baboons were spend in each square. The cannot be taken at face they are biased against the baboons tended to times when observation frequent. Once this bia removed, it is found spent over half its dayli less than a tenth of its area. Use of individual then be related to featu water holes and rain po trees, and safe routes thro gerous areas.

Although this is primarily for the specialist, it is one non-specialist might look profit inasmuch as it exe level of sophistication studies. The popular mate fieldwork seems amalgam of Jane Va Goodall and *The Naked* reality is regrettably less than the former but per meticulous in method in reasoning than the glance through *Baboon* should help to shatter the

History of Science from Leicester University Press

The History of Valency by C. A. Russell (Senior Lecturer in the History of Science, The Open University) will be published shortly. The evolution of this basic concept in chemistry is described in detail, particularly as it affected such related fields as aromatic chemistry, the classification of the elements, the theory of organic structure, and stereochemistry. (8½ x 5½ ins 376pp illustrated £5.50)

The High Firmament by A. J. Meadows (Professor of Astronomy, University of Leicester) draws on the history of astronomy to examine the ways in which scientific trends are reflected in non-scientific literature, providing an insight into the diffusion of scientific ideas throughout society as a whole. (8½ x 5½ ins 224pp £2.25)

The Atomic Debates edited by W. H. Brock (Lecturer in the History of Science, University of Leicester), comprises three studies. The first examines the various traditions which led chemists to reject the atomic theory. The others provide a complete analysis of Brodie's Calculus of Chemical Operations together with the first publication of a selection from his correspondence on this subject. (8¼ x 5½ ins 196pp £1.90)

Vestiges of the Natural History of Creation by Robert Chambers, that work of great significance for the study of Victorian thought, is reprinted from the first edition in THE VICTORIAN LIBRARY with an introduction specially written for the series by Sir Gavin de Beer. (8¼ x 5 ins 444pp £2.50)

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The formation of nerve connexions

BY R. M. GAZE

Division of Developmental Biology, National Institute for Medical Research, Mill Hill, London

most people working nervous system have e of their main incen- e of contributing towards ling of the neural bases ervous activity. A very of mankind is man; kes man different from als is what goes on in his tem, the various neural at must underlie the phe- intelligence, language, ning and so forth. rtly, the very complexity e nervous system such system to study pre- ess to the secrets of There are too many too many nerve fibres them for us to expect t it all out. And not sical structure of the ngly complicated, its s also prove difficult An old parlour game of ly inclined neurobiolo- ttempt to codify human ties so as to simulate machine. In this game the has so far been low; t surprising when we hat there are almost as tions of "intelligence" investigators; and when at we do not as yet fully the rules underlying the own language.

e, therefore, that we are make much progress if the brain head-on, so to eed a better tactic; and effective approach is to development of the adult nervous system many thousands of d cells, extensively inter- ; but even so it started life ell, the fertilized egg. It that, by study of the development of the brain mode of onset of func- ht hope to gain insight ctors which lead the to become connected y it does; and also, nd out something of p between the devel- and the developing structure. To put the question back to front, instead of asking how does the adult nervous system work, we ask how does it get into a state during development where it *could* work?

Such a developmental approach is already a considerable improvement over a study of the intact adult structure. But the improvement is not yet sufficient. The developing brain is still too complicated. So we restrict our study further still and consider only the development and function of a small part of the system.

We can arbitrarily subdivide the nervous system into three parts which we can call inputs, central interconnexions and outputs. In this scheme, the inputs would comprise all the sensory systems feeding information into the brain; the outputs would be the motor pathways leading to the muscles and glands; and the central interconnexions would comprise everything else. In the vertebrates, anatomical studies have shown that the sensory inputs to, and the motor outputs from, the central nervous system are arranged in an orderly fashion such that, on the sensory side, the sense receptors distributed across the surface of the body send their fibres in a topographically ordered way to the main sensory regions of the brain. In this way there is preserved in the sensory centres a model, or map, of the sensory surface of the body. These orderly fibre connexions between the sense-receptors on the surface of the body and the sensory centres of the brain, and the orderly connexions between the motor centres of the nervous system and the muscles, have been extensively investigated by numerous anatomical techniques; and our information about what connexions exist is fairly detailed.

The situation is quite otherwise when we consider the intracentral connexions of the nervous system—all those connexions lying between the input and output regions. The number of these intracentral connexions increases relative to the other two classes of connexions, as we ascend the evolutionary scale. Anatomical information about these intracentral connexions is rather scanty and in its absence we can only say that their organization seems to be very complex indeed.

Since we do not know much about the intracentral connexions, and what little we do know suggests they are very intricate, it is clearly sensible to place most emphasis on the investigation of the development of the input or output connexions; and it is on these systems, in lower vertebrates, that almost all the experimental work has been done.

We can consider the surface of the body as a distorted sheet of tissue in which sense-receptors are distributed irregularly. These sense-organs, as I have said, connect via nerve fibres with the sensory centres of the nervous system in an orderly fashion, one which preserves the functional topography of the body surface. But the surface of the body is not an ideal one for our purposes—it has too much shape; there are too many protuberances, such as limbs, disturbing it.

The eye is a sense-organ that is much better adapted to our requirements than are the sense-receptors of the skin. The eye contains a retina, an extended receptor surface which is uncomplicated by distortions of shape and can, for our purposes, be considered as a flat sheet of cells. The ganglion cells of the retina give rise to the optic nerve fibres, which connect the eye to the primary optic centres of the brain; and the orderliness of this fibre connexion is such that the retinal surface maps in a one-to-one fashion on to the visual brain.

The precision with which retinal topography is reflected in the fibre connexions from the retina to the visual brain enables us to ask some useful questions about the relationship between structure and function in this system. If we pay attention only to the phenomena of visual localization, and ignore all other aspects of visual function, then we can say that, for instance, a frog is able (as are other vertebrates) to identify accurately the position of a stimulus in its visual world. If the stimulus is a fly or other small edible object, the frog locates it precisely and strikes in such a fashion as to capture the prey. For this to happen, the animal must know whereabouts in visual space the object is. Or, what amounts to the same thing, the brain must know what part of the retina is being stimulated.

We have every reason to suppose that the position of the visual stimulus one the retina is indicated to the brain by the nature of the topographically ordered fibre connexions that join the two. The anatomical connexions between eye and brain are such that, in a frog, a stimulus falling on the temporal part of the retina will send impulses to the front of the optic tectum (the visual part of the brain in a frog), whereas a stimulus falling on nasal retina will send impulses to the back of the tectum. Thus a different part of the visual brain is excited in each case and, with relation to visual localization, this appears to be the basis of the different functional results of stimuli falling on different parts of the retina.

Here, then, in the connexions between the retina and the primary visual centres, we have a comparatively uncomplicated system; and we have also a good correlation between structure and function; the orderly fibre connexions of the retina subserve visual localization. So we can now work backwards and ask how the connexions got set up in the first place, during development. Here we come across one of the main advantages of studying the lower vertebrates. These animals (in particular frogs, newts and fishes) have a very useful attribute: they can regenerate injured nerve fibres within the central nervous system—and this includes optic nerve fibres. This means that we can study the formation of eye-brain connexions in two quite different situations: in the first place during the original development of these connexions in embryonic life; and in the second place during re-formation of connexions after injury in adult life. Both approaches may be expected to tell us something about the factors that control the formation of nerve connexions.

In 1925 Robert Matthey observed that if one optic nerve was cut in a newt, thus blinding the animal in that eye, the ganglion cells of the retina were able to regenerate optic nerve fibres back to the brain and eventually the animal could see again through the affected eye. The animal reacquired the ability to localize stimuli accurately, using the operated eye.

This was a very remarkable observation. As is so often the case, however, its significance was not properly noted at the same time and it was not until 1943 that R. W. Sperry, in America, repeated the observations and realized what they must mean. Sperry's reasoning was elegantly simple: he thought that, since the animal was able to localize objects again, after regeneration of an optic nerve, either the optic fibres had grown back to their proper places in the brain, which would automatically permit normal visual function again, or they had grown back more or less randomly; and if the latter, then the animal must have "relearnt" its visual field so as to make functional sense of the altered connexions. Whatever the mechanism, the brain certainly knows again which part of the retina is being stimulated. If the optic nerve fibres regenerate to their proper places then the various parts of the visual brain will automatically be informed about the site of the retinal stimulus. If, however, the optic nerve fibres grow back to the *wrong* places, and yet the animal gets it right, the brain must in some sense have learnt what the new connexions mean.

This formulation of the problem led to an experiment which has since become famous. If the brain can adjust to altered visual connexions, it should make no difference if the eye is rotated in the orbit. So Sperry's experiment was to cut an optic nerve and rotate the eye. When the animal recovered vision in the operated eye, its visually-directed behaviour was found to be upside-down and back-to-front. The animal consistently jumped in a direction 180° away from the presented lure. If the lure was in front, he jumped backwards; if the lure was above, he jumped downwards, and so forth. These animals were thus worse off than if they had no vision; in this latter case they would at least have a possibility of getting the prey by occasional random jumps, whereas in fact the response in every case was *away* from the target. Therefore, since we cannot envisage a learning mechanism which leads to the animal consistently missing the target, Sperry concluded that, during regeneration, the optic nerve fibres grew back to their proper places in the visual brain.

Since these early experiments numerous other types of approach have been used, including histological analysis of the regenerating optic nerve and electro-physiological recording from the regenerated fibres. All the results support Sperry's original conclusions: regenerating optic nerve fibres can get back to their proper places. As we know that the fibres get to their proper places during embryonic development, it is a useful initial hypothesis that similar control mechanisms may be at work in both situations. This leads us back again to our original question: what *are* the factors which control the formation of these precisely ordered neural connexions?

It is obviously easier for us to consider this question in relation to the regenerating nerve in an adult animal. The adult is much bigger than the embryo and thus the system is easier to get at. We can show that the regenerating fibres are not mechanically guided back to their correct brain loci—the occurrence of massive scar formation at the site of the nerve section demonstrates that the fibres can reach their

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destruction despite gross interference with the normal ordering within the nerve. And we can also show that a simple hypothesis involving the time of arrival of various fibres at the brain is inadequate to explain the findings. We can certainly predict that some fibres grow faster than others, and this is probably true; but time is a single dimension and we cannot by invoking time alone, account for the orderly restitution of a fibre distribution in *three* dimensions (two across the surface of the brain; one in depth below the brain surface) such as occurs during regeneration of an optic nerve.

Because of these various difficulties, Sperry was led to propose that the individual ganglion cells of the retina, although they all look somewhat similar, are in fact inherently different from one another at a cytochemical level. Each neurone could be thought of as being uniquely different from all others and thus to manifest what has come to be called neuronal specificity. Numerous experiments, apart from those mentioned above, lead us to the conclusion that the various ganglion cells from different parts of the retina are different from each other. They behave differentially—they will each only connect with certain restricted parts of the visual brain.

These behavioural differences within the apparently uniform population of ganglion cells seem to reflect an extra dimension of differentiation occurring during the animal's development. During embryonic differentiation the various cell types of the retina appear: the receptors, bipolar cells and the ganglion cells. These various cell types differentiate so that they are visibly distinct from one another. Whereas within the population of ganglion cells those from different parts of the retina look much alike, their individual behaviour is unique in terms of the connexions they will each form.

Sperry proposed, therefore, that differentiation continued, within the population of ganglion cells, until each cell possessed its own unique cytochemical individuality or label. The hypothesis also required that a comparable cytochemical differentiation should occur among the population of tectal cells and that the two labelling systems should be complementary. Thus when the developing eye sends optic nerve fibres from its ganglion cells to the tectum, each fibre would be able to recognize, and connect with, its appropriate tectal cells. On this view, the connexions that may be formed within a system are predetermined by chemospecificities among the cells concerned; and these specificities are under genetic control. In such a mechanism neural function has no part to play; and, indeed, the cellular differentiation that leads to the appearance of the cell specificities takes place very early in development, before the system is capable of transmitting nerve impulses.

This type of mechanism for ensuring that appropriate neural connexions are formed—involving neuronal chemospecificity—has been extended to cover large areas of the nervous system other than the visual pathways. A similar mechanism has been proposed for the fibres subserving skin sensibility, the connexions between the nervous system and the muscles, the fibres of the auditory nerve and various others. It is worth stressing, however, that most of the evidence in favour of chemospecificity mechanisms has come from study of the inputs and outputs of the nervous system. Very little work has yet been done on intracentral connexions. Since these latter are the parts of the nervous system that have most directly to do with "higher activities" it will eventually be most interesting to identify some of the factors concerned with the formation of these connexions.

Neuronal specificity is a very rigid sort of mechanism to control the formation of nerve connexions. The main attraction of the hypothesis is its simplicity and all-embracing character; and a major disadvantage is that it is very difficult to put to experimental test. No amount of study of optic nerves regenerating from intact retinae to intact tecta will enable us to test the hypothesis adequately. To do this we must introduce "size-disparity" between the retina and the tectum. We must allow half a retina to regenerate fibres to a whole tectum, and, conversely, a whole retina to regenerate fibres to a half-tectum. This sort of tactic may be expected to reveal whether or not there exists a rigidly fixed, one-to-one relationship between a retinal fibre and its corresponding tectal locus.

This type of experiment has been performed recently on developing amphibians and on adult goldfish, and our results lead us to question the hypothesis of neuronal specificity, as originally stated. It turns out that if we operate to produce a half-retina in an amphibian embryo, this half-retina may spread its fibres *in proper order* across the whole optic tectum. In adult goldfish we find that a whole retina can compress its fibres in proper order across only half a tectum.

These experiments show that the original idea of neuronal specificity is inadequate. A retinal fibre may connect with various parts of the tectum, depending on the circumstances; it cannot therefore be described as "specific" for any one part of the tectum. Va seem to emerge from th study, and these we hope w pointers for future work. I matter how the two end visual pathway are fiddled *polarity* and the *order* of distribution appear to be Moreover the mechanisms ling the formation of eye-b nexions appear in certain plastic, or elastic; what is of tance is the total extent and tectum available to nected.

It seems a long way visual system of a fro nervous system of man many reasons to think. that several of the mecha derlying the formation connexions are commo entire animal kingdom. Amo advanced animals a greater proportion of nerve ions are "intracentral" an of these are concerned wi nervous activities. One of interesting problems in neur opment is the extent to wh intracentral connexion pa genetically determined. Or, the emphasis differently, extent these connexions modifiable by function. And field, much work which exciting results is being do present time,

No rewards, no punishments, no reaction

GABRIEL HORN and ROBERT A. HINDE (Editors):

Short-Term Changes in Neural Activity and Behaviour

628pp. Cambridge University Press. £10.40.

The relation between mind and brain, or between the overt behaviour of an organism and the underlying neural mechanisms, has intrigued philosophers and scientists since early times. The use of increasingly *sophisticated techniques has permitted the intensive study of all the organ systems of the animal body*, including the brain. The major principles operating in most of these systems are now broadly understood although there is still considerable ignorance of the detailed cellular processes involved. In the case of the central nervous system, however, not even the broad principles are as yet unravelled, the surface of the subject has only been scratched. The intellectual challenges posed by the inter-relationship of brain and behaviour thus remain of the highest order.

Attracted by such challenges, ever-increasing numbers of investigators have devoted their attention to this subject and neurobiology has emerged as a major field of biological endeavour. Despite this concerted attack, the complexity of higher behavioural processes has still defeated the investigators. Such defeat is *typified by the experience of that* most eminent of neuropsychologists, Karl Lashley, who spent most of his scientific life attempting to locate the site of memory storage. At the end he claimed, ruefully, that extensive researches had merely succeeded in demonstrating that memory was not possible! Neurobiology, which if it has left its infancy is certainly no further than early childhood, had set its sights too high in attempting to understand the highest neural functions such as memory, consciousness and perception.

Perhaps a much simpler pattern of behaviour should be selected and rigidly characterized. The detailed characteristics of such behaviour may then be compared with, and possibly correlated with, similar characteristics of neural units at successively finer levels of analysis of the nervous system. The contributors to the present symposium are concerned with the behaviour known as "habituation". The first time a stimulus is presented to an animal the latter responds with a variety of exploratory and autonomic responses. If exploration reveals that the stimulus signifies neither a threat nor a reward, then subsequent presentations of that stimulus may result in decreasing responses until finally the stimulus is ignored. Habituation is thus an apparently simple pattern of behaviour suitable for analysis on the terms outlined above.

This book contains the proceedings of a conference, sponsored by the Cambridge King's College Research Centre. It is devoted largely to habituation but other short term neural and behavioural phenomena are also considered. The date of the conference is not given but the presence, in the bibliographies, of numerous references dated 1969 or 1970 suggests that there has not been an undue delay between the conference and the publication of its proceedings.

In the early part of the volume the behavioural aspects of habituation are examined and the difficulties inherent in the investigation of higher neural functions soon become manifest. The analyses by Robert Hinde and by J. Kling and J. Stevenson reveal that habituation, far from being the simple behaviour that it appears, is such a complex phenomenon, involving probably several interacting and interdependent processes, that it is difficult to state clearly any absolute characteristics of such behaviour. These accurate but depressing conclusions vitiate, to a certain extent, the rationale of the conference. If it is impossible to characterize adequately habituation on the behavioural level, then it is also impossible to be sure how accurate a paradigm of habituation is represented by any of the neural systems examined in the second part of the book.

This second section, rather optimistically entitled "Neural Basis of Habituation", contains a series of papers in which, broadly speaking, the effects of repetition of a stimulus on the recorded characteristics of neural cells in a whole variety of neural systems are observed. The neural systems studied range from the complexity of the mammalian limbic and reticular systems, through the mammalian spinal cord to much simpler invertebrate preparations. An impressive amount of information is presented in this section and even if its relevance to habituation is only tentative, issues of great intrinsic interest and importance are raised. O. Vinogradova's paper is a valuable member of this series, containing a review of her own and other Russian work on the role of the limbic system in the registration of information. It displays an approach refreshingly free from the constraints of vague and outdated Pavlovian concepts that have restricted so much Russian work.

A theme recurring through the papers of this section is the complexity of the processes involved even in those systems which are supposed to be constituent elements of the overall habituation phenomenon. Thus while K. Segundo and C. Bell can demonstrate reductions in inhibitory and excitatory post-synaptic potentials, the mechanisms responsible for these reductions remain unknown. P. Wall plausibly argues that his "habituation" occurs at a particular synaptic junction but even here it is not known whether the reduction in response is due to reduced activity in an excitatory pathway or to the increased activity of a parallel inhibitory pathway.

The final group of papers are about the effects on neural function of increased or reduced activity or of simple learning situations other than habituation. Steven Rose's review of neurochemical correlates of learning and environmental change is a moderate and critical account of a field in which conclusions are generally noted neither for their moderation nor their critical content. The results of biochemical experiments, particularly those involving "memory transfer macromolecules", present a major challenge to our understanding since it is very difficult to incorporate them into the orthodox corpus of knowledge. All too often, however, the work tends to be ignored because some workers in the field persist in constructing vast and untenable hypotheses on the basis of what Professor Rose terms "one shot experiments". Professor Rose's account, by its very moderation, provides food for thought. P. P. G. Bateson, in a cautionary article, emphasizes the difficulty, particularly pronounced in the areas of investigation covered in this volume, of demonstrating that the correlation of two phenomena indicates a causative relationship between the two rather than a non-specific side-effect.

In emphasizing the difficulties and complexities inherent in studies of brain and behaviour it is all to give a falsely depressing progress. The fact that de answers to the problems rais not been obtained means that the problems are unim nor that progress has bee way negligible. As O. Vino points out, the last decade ha a period of great excitem high expectations. The exp have not yet been entirely but the excitement persists a advance of knowledge gradual is inexorable. The co of this book represent an a tive and readable accoun present state of an impo of investigation. Modest in our knowledge of the opera the brain are being made are a necessary pre-requisite adequate assessment of ou Periodic progress reports, they sustain the standard book, would be both valua enjoyable.

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Tour of the cells

OLIVER GILLIE:

The Living Cell

216pp. Thames and Hudson. £2.10 (Paperback £1.05.)

There are many ways in which a book for non-biologists called *The Living Cell* could have been written. Dr. Gillie has chosen the most unimaginative and predictable. He lays stress on molecular biology and the most fashionable discoveries of recent years and surveys them in a series of more or less standard chapters. The last two, "Embryos and Cell Specialization" and "When Cells Go Wrong" are the best and give the impression of a real interest on the part of the author.

For some reason, popularizers of science often seem to assume that their readers have the mental age of schoolchildren, and minds clouded by superstition. Thus books on biology begin with dismissals of vitalism, and *The Living Cell* is no exception:

> The French philosopher Henri Bergson, who died in 1914, believed in a certain force which he called the *élan vital*, but today such vitalist concepts—as they are called—are discounted by the scientist when he is being a scientist and not temporarily adopting a poet's viewpoint. The bodies of animals and plants are, then, for the scientist machines composed of cells.

But vitalism is not mentioned only to be forgotten. It is a concept that continues to be hit even when it is down: "The identification of DNA as the genetic mate perhaps the greatest blow to since Darwin published the *of Species* in 1859."

Dr. Gillie covers an eve range than he need have including speculations on advances and fragments of tory of modern biology which are simply wrong; ple, Svedberg's ultracentrif not attain anything like sp million revolutions per mi the use of ^{18}O in 1941 "one of the first expe which radioactive isoto used" since ^{18}O is not m

Although Dr. Gillie reader like a tourist on day-trip there are othe writing about science. Fo E. J. H. Corner's *The Life* one of the best of all gene on biology, gives a sense complexity, variety and inte living things, as well as bei informative. Much of th covered in Dr. Gillie's book with brilliantly in J. D. W *The Molecular Biology of* at greater length and with experimental detail which a general reader, require to follow, but which would more rewarding; Professor offers not only a lucid sum the whole field of molecula but also an accurate impr science in action. In *The Li* there is little sense of scie life, only of scientific journ

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om the pre-Socratics to I.C.I.

INGTON:
of Chemistry
Part I: Theoretical Back-
millan. £10.
HARTLEY:
History of Chemistry
endon Press: Oxford
Press. £2.75.
Industry 1900-1930
endon Press: Oxford
£6.

good, save the boring Voltaire remarked, but definition of boredom as personal taste. It is three more diverse the history of than those of Sir Harold Haber, and the late Partington. In the first purpose was to entertain, series of biographical the second, to blend the and economic history of industry; and in the third, historical mountain of encyclopedic character. Una- another Voltairean the secret of boredom everything, Professor planned his history in four enormous and the last three, the period from present, have been in as reference books publication some years author, who died in 1965, best known for his *Inorganic Chemis-* million-and-a-half word *Treatise on Physical Chemistry*. If erudition is an ability to write at great length over a wide range of subject and epoch, and with an impressive phalanx of footnotes, then Professor Partington's works are indeed monuments to his erudition.

The first part of volume one of his *History*, which has finally appeared, surveys the theoretical background to early chemistry, beginning with the usual band of pre-Socratic Greek philosophers, and taking in the Greek atomists, Plato and Aristotle, the Stoics, the Medical schools, the Neo-Platonists, the Hermetic books, and the gnostics, before turning to magic, astrology, and the cults of Mithras and Mani. Ending with chapters on the star-worshipping Harranians, and the Jewish doctrine of the Qabbalah, the book rather tails off in the early Middle Ages. (The second part of volume one promises to be "Chemistry in India, China, and Europe until A.D. 1500".) At first sight, the author appears to have assembled a sort of chemist's Pauly-Wissowa-Kroll *Real-Encyclopädie*, and the analogy is close in all respects but that of depth, and of course length.

Professor Partington's was a one-man show: he simply tried to do too much, but his failure was a very valiant one. He could seldom afford to dwell on any one subject for a length of time sufficient to enable him to read up more than one side of an argument, or to find the best single treatment of a particular subject. His books are written for the most part in a clipped and dogmatic style, which makes it almost impossible to read them in a consecutive manner, but they are valuable in a way all reference books are, if used with a proper caution. They will be plundered unacknowledged for years to come.

Sir Harold Hartley's style has very little in common with Professor Partington's. With barely a handful of footnotes in the entire book, a fact partly due to its having been assembled from a number of lectures delivered over the past fifty years, the result is more of a personal document than a compilation. It is anecdotal, and yet anecdote is kept under control, and little has been sacrificed by way of accuracy. It is written as a series of biographical chapters in the "great men and great ideas" tradition which some historians of science profess to think immature, *pace* Carlyle's dictum; and yet despite a palpable lack of what passes for professionalism it is marked by an abundance of genuine historical insights and a vitality from which many a professional might benefit. Sir Harold, who is now ninety-two, was first asked to write such a book as this nearly seventy years ago (see Commentary, p.532). His chapters cover the work of Priestley, Lavoisier, Dalton, Davy, Berzelius, Faraday, Cannizzaro, Armstrong, and others. Even in a final chapter on the contribution of the college laboratories to the Oxford School of Chemistry, where as a one-time chemistry tutor at Balliol he is able to speak from first-hand experience, he generally resists the temptation to lapse into autobiography. For twelve years Davy filled the lecture theatre of the Royal Institution with an eager audience whose members were possessed of a wide range of knowledge. Sir Harold Hartley's book is in a similar and all too rare tradition in the history of chemistry.

Dr. Haber's book is less concerned with the academies than with the applications of chemistry, less with intellectual than with economic history. The author of what has already become a standard work on the chemical industry in the nineteenth century, his new book covers in even greater detail the first thirty years of the present century, during which the rate of growth of chemical manufacture easily outstripped that of industry as a whole. The period includes the extremely important work of the author's own father, not to mention the rise of an electrochemical industry, the industrial use of catalysis, and the introduction of a host of new ways of utilizing energy in chemical engineering. New synthetic products continued to replace the natural materials, the most spectacular example being that of the man-made fibres, discovered as the result of a search for a strong carbon filament for electric lamps. The number of identifiable organic compounds was multiplied enormously, approaching a third of a million by the end of the period chosen. Research became almost an industry in itself, being sponsored by the universities, by government, and by industry, and pursued in all cases with a stronger sense of purpose after 1914.

Dr. Haber's terminal date was chosen in order to exclude the complex effects of the depression of the late 1920s, which was in turn followed by a recovery largely consequent on rearmament. Since in international terms the industry holds up a mirror to the general fortunes and dissensions of the three giants, Germany, Britain and America, Dr. Haber's book deserves a wide historical audience. He shows throughout his close familiarity with the pattern of industrial firms in those countries, as well as in France and Switzerland, and an awareness not only of the structure of international markets, but of the chemistry underlying the innovations of the time. Whether in relating the work of the academies to government educational policy, or in analysing the generally enlightened labour relations in the industry, or the economic effects of wartime government intervention, Dr. Haber writes with precision and authority in what, bearing in mind the subject, is an unusually fluent style. Of our three authors, he must certainly be reckoned the most weighty, but "de gustibus . . ." and all that.

well America

and
Earth's Moving
£1.50.

and well-produced a comprehensive remarkable break- science of the past for the general reader background, while introduction for the Everyone knows is whirling through that the continents have and are moving inde- the interior came as a who saw the recent on the subject.

drift is the term given that is carrying from Europe at the every year. This rate small at first sight, ages of geological have been spectacu- parallelism of of Africa with of South America Bacon (*Novum* no mere accident, that the American separated from has been in the thought ever since. first writer on the German geophysicist generally received bringing together in evidence indicat- movement has indeed all his evidence was and there was the of finding a mechan- explain it. So, apart champions like the out- geologist Arthur Scot as the present hypothesis of found few sup- an eclipse. Its the outcome of 1950 by geophy- sides of the the 1,000 as the edge of the continents, was proved on the computer by Edward Bullard to be remarkably close, with only a few bits of the jigsaw missing. Greenland fits in between arctic Canada and Scandinavia. Farther afield, Antarctica, India and Australia seem to come against East Africa, but here geometry is less decisive. The test is the correlation of the highly complex internal geological details of the individual continental pieces, and though much remains to be done there are very significant cases, like the extremely close similarity of the stratigraphy of West Africa and eastern South America, or the linkage of the ancient mountain chains of Scandinavia, Scotland, Newfoundland and the Appalachians, that could hardly be accidental.

It was the discovery of palaeomagnetism, however, that clinched the matter. The significance of remanent magnetism in rocks as a record of the direction of the earth's magnetic field at the time when they were formed, first appreciated by P. M. S. Blackett, was pursued all over the world by Keith Runcorn and his associates (including Don Tarling) in Newcastle, producing data from which the position of the magnetic poles could be established at a series of exact stages in the earth's history. The wide but systematic variation in the apparent positions of the poles with respect to individual continents can only be explained if the continents have migrated and separated. Confirmatory evidence, well set out in simple terms, comes from ancient life, environments and climates, fossilized and recorded in the rocks.

The immediate mechanism, only established since 1960, is now seen to be the spreading of the ocean floors by the outpouring of basalt from median fissures, one of which is marked by the mid-Atlantic ridge system; and the resorption of the basaltic sheets or "plates" so formed into the earth's substratum beneath the continental margins. The floors of the oceans are fundamentally different from the continents, a fact which has been known for a long time, but which now becomes comprehensible.

Hard to resist

FRANZ-ANTON MESMER:

Le Magnétisme animal

Edited by Robert Amadou.

407pp. Paris: Payot. 42.60fr.

If the Austrian doctor Mesmer is today remembered only for having provided us with a useful *-ism*, this is to some extent a consequence of the difficulty of finding his writings. M. Amadou has now provided us with a collected works, which includes commentaries and notes by F. A. Pattie and Jean Vinchon. Published in the series "Collection Science de l'Homme", the general editor Gérard Mendel explains how Mesmer may be regarded in two different ways, as a precursor of studies on hypnosis and hysteria (work by such as Charcot, Bernheim, Breuer, and Freud), or as a disciple in the traditions of occultism. The opening treatise is thoroughly astrological. From the supposition that astrological forces are electrical, and thence to the idea that they are magnetic, we may through the essays which follow see the gradual formation of the essentially physiological theory of animal magnetism. Something of the stir which Mesmer created in society and in medical circles at the time may be seen from a number of letters printed here. In part translated from Latin, and in part from German, this is an exceedingly useful book, not only for the texts and notes, but for M. Amadou's concluding essay, which places Mesmer in historical perspective. He was a man, as it were, mesmerized by his own success, an empiric if not an impostor.

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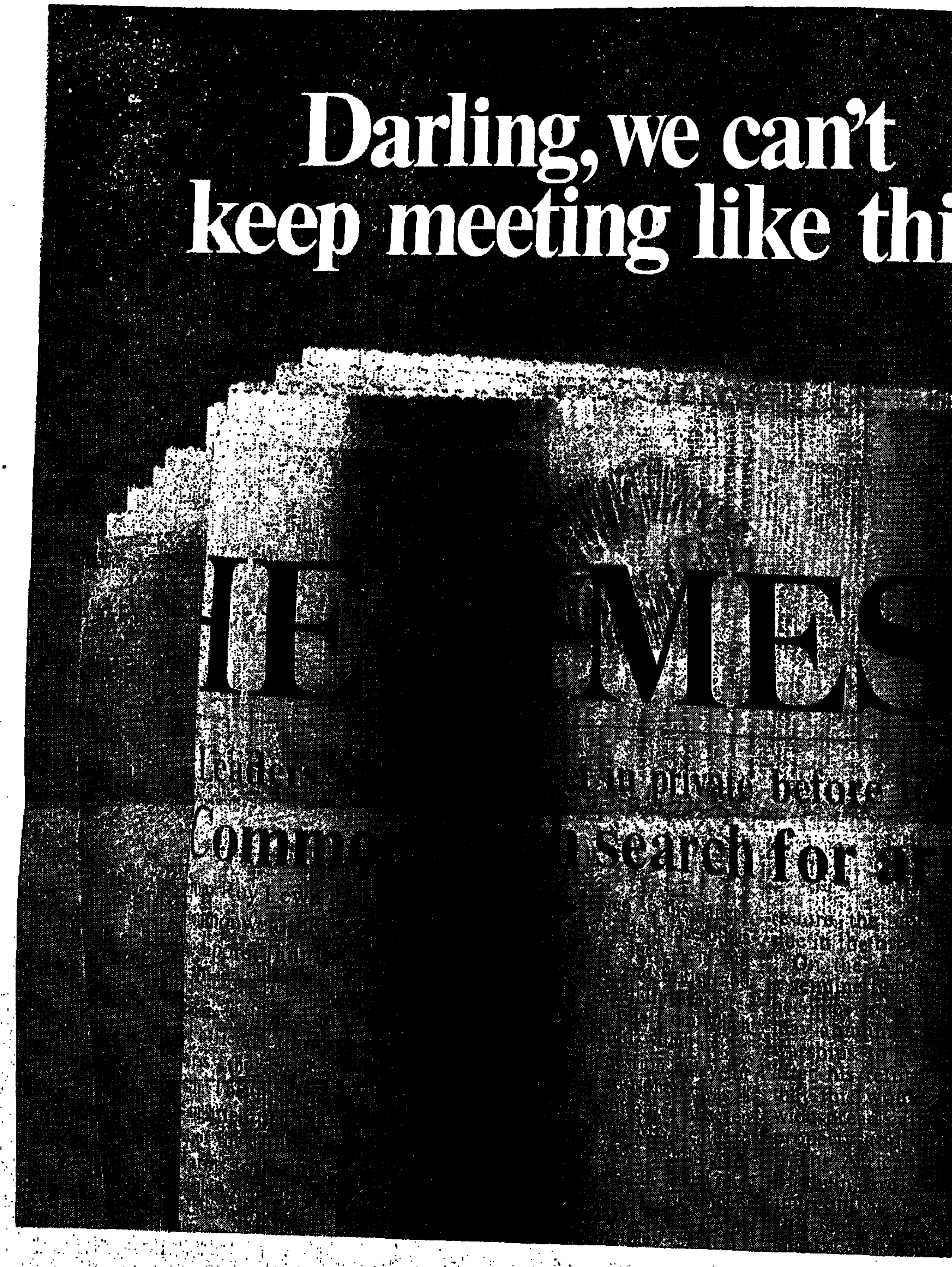

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Crafts

JOHN. *Children on* pp. Allen and Unwin.

are of children por- ch brasses, either by kneeling alongside Selective lists are types, and a further under counties. The author says, are re- high rate of child one illustration four are named John, two and two Agnes. Not enth and seventeenth the memorials begin to to a more sentimen- wards children.

Raku: Art and Tech- pp. Studio Vista, £5.25.

as it is, has attracted in Japan, where it is high form of potting. and the very random- randomness of result any Western potters into an easy technique. Hal well known American written here on the tech- with the Westerner in book is not quite a nor yet a history, but much valuable informa- dent of pottery. Many graphs are of pieces by are often badly repro- necessarily arty-crafty

School Leavers 1971. market Press. Paper-

that has expanded into shy album. Big print strations beckon the Britain is surveyed . There are articles and, as always, guides to the jobs that offer them, all dexed and arranged. lth of material, how- that one or two of tions are thin.

Studies

es W. *Herodotus.* don Press: Oxford ress. £1.75.

ed as a teller of tales quiries. When he he conceived of a Persian expansion, as a framework to earlier tales. But the Xerxes was written ence of tragedy to mutability of human empires in particu- intention was to understand the y (the Peloponnesian perspective. Such sis of this book. The plausible enough; the the purpose of the last debatable. Herodotus ends on from Cyrus: "those soft become soft". It is that this is what he really to his contemporaries, not exclude the tragic Professor Fornara dates the 431-421 B.C. Did Herodotus so long? He was born he was in Athens in 445-441 and then in Thurii in the West. Eastern material must have collected before he got to In Athens he met Sophocles; hear the *Iliad* recited com- he probably met Protagoras Anaxagoras; and at that date split between Athens and was clear. The conception third stage is more likely to come then. Professor Fornara busy refuting his predecessors no mention of Sir John or Wolfgang Aly?) that he deal with all these problems the ordinary reader: just analogy between Herodotus and Homer and the analogy between Herodotus and tragedy work (surely only with Aeschylus and early Sophocles), and why does a reference to Anaxagoras come in the account of Egypt, which he dates very early, and a reference to Protagoras in the account of Arabia, which should be early too? It is to be hoped that he will write more about an author whom he obviously loves and understands.

Country Life

SIMMONS, JACK (Compiler). *A Devon Anthology.* 285pp. Macmillan. £2.75.

Of this Devon anthology the author says that the aim is to reflect facets of the county's character rather than to define it. Thus the passages are grouped under a dozen headings to illustrate people and places, occupations, food, drink, folklore, and so on. Since the county has not lacked for a literature, Mr. Simmons has obviously had a wide field for selection. Herrick and Hooker, Kingsley and Baring-Gould, Manley Hopkins and Kilvert the diarist demanded inclusion; but here also are quaint epitaphs from country churches, passages from the relatively little-known diary of Philip Wyot, the Elizabethan town clerk of Barnstaple, and *The Times* report of the Lynmouth flood disaster of August, 1952.

Gardening

WILSON, HELEN VAN PELT, and BELL, LÉONIE. *The Fragrant Year.* Scented Plants for Your Garden and Your House. 314pp. Dent. £3.75.

With long experience near Philadelphia and in Westport, Connecticut, the authors have grown all the fragrant plants they describe. The climate is similar to that of sheltered gardens in South-West England; an appendix by Graham Stuart Thomas provides relevant modifications of nomenclature and culture for British gardens.

After attempting to classify scents, successive chapters describe the sequence of fragrant plants throughout the seasons and at different times of the day, a whole chapter being devoted to roses. Advice is given on cultivation and on plants for indoors. Beautiful and accurate illustrations from Léonie Bell's drawings enhance the volume, written with both enthusiasm and perception for all parts of plants that have "the enchanting quality of fragrance" whether their charm is in the flower, crushed leaves or burning wood.

Geography

COPPOCK, J. T. *An Agricultural Geography of Great Britain.* 345pp. G. Bell. £2.75.

In a period of great technical change, some old constraints on farming are removed; others, like climate, elevation and ease of access to markets remain. It is a dynamic and not a static situation which Professor Coppock here examines and he is conscious of this. The first part of his book is concerned with the factors which favour particular enterprises in various parts of Britain; the second is a geographical analysis of the principal enterprises themselves and an attempt at a regional synthesis. He concludes with some interesting speculations on the future approach to the subject, as computer techniques make statistical material more quickly available in map form.

Literature and Criticism

MCLAUGHLAN, JULIET. "*Tess of the d'Urbervilles*". 117pp. Oxford: Blackwell. Paperback, 50p.

Although this series of "Notes on English Literature" is addressed to the student and Miss McLaughlan is a high school teacher, her analytical appreciation of *Tess* bears no trace of the dry textbook style. True, she has a subject that should appeal to most readers unaided, but they could miss Hardy's subtle methods of portraying nature and humanity in a world without providence. Here Miss McLaughlan goes to work with imaginative insight. Discussing the tragic elements she stresses the pervasive importance of heredity whereby the potential fate of Tess derives from the past as an echo. Angel Clare, Tess's god who should play St. Michael to Alec's Lucifer, allows a priggish self-righteousness to blind him, while Alec, the apparent villain of melodrama, contains an equal ambivalence between good and ill, thus rescuing the story from all crudity. Miss McLaughlan is particularly happy in relating Hardy's superb visual images of light – sun, fire or enveloping darkness – to events and characters. Tess herself is rendered infinitely lovable, as Hardy's visual pictures of her are assembled. To clarify so much and more in a brief essay makes the ideal introduction for the student reader.

Local History

CHAMBERLIN, E. R. *Guildford. A Biography.* 229pp. Macmillan. £3.15.

Too many of Guildford's old buildings have been swept away in recent times but much still remains and the Surrey town has so far maintained its character, resisting transformation into yet another featureless London dormitory. Its long history, symbolized by the Norman castle at one extreme, by the new cathedral and university at the other, is traced out in this well-considered study, which is at least as much concerned with the present as with past centuries. The struggle to retain what deserves preservation, though so much intensified now, is not entirely new for we read that in the 1880s it was actually proposed to raze the Norman keep and substitute a bandstand. Mr. Chamberlin has produced a book which, both in its wealth of historical detail and in its concern for the future, does a service to the historic town in which he lives.

A Handlist of Poll Books and Registers of Electors in Guildhall Library. 87pp. Corporation of London. Paperback, 40p.

Before the secret ballot was introduced in 1872 local lists of voters were drawn up showing the candidates for whom each voted. These poll books, printed or in manuscript, are now a useful source for local history and genealogy. The Guildhall collection of such records, destroyed in the blitz, was afterwards partly made good by purchase and gifts, and this list shows the present extensive holding, county by county.

JONES, P. E. *17th Century Taxation in Hammersmith.* 29pp. Hammersmith Local History Group. £1.

The text of an address to the Hammersmith historians' group in which the speaker discussed some early taxation records of local interest preserved at Guildhall and pointed out how the Crown anticipated its revenue from taxation, by large borrowings. The booklet includes, too, a transcript of a Hammersmith rating assessment list drawn up in 1693—a rare example of its kind.

Maritime History

KEMP, PETER. *The British Sailor.* 241pp. Dent. £2.75.

Commander Kemp covers almost the same ground as did Christopher Lloyd in *The British Seaman* published in 1968. Inevitably he has used many of the same primary sources for his account of the sailor's life and he has found nothing new to say. In comment and analysis. There is a great deal of repetition from one chapter to the next as he describes the perennial complaints of the men about their pay, victuals and general treatment. Like any other student of his subject Commander Kemp is puzzled why men so arbitrarily forced into the Navy and so abominably treated during their service fought so much better than their French opponents. The answer probably lies in the British officers, who for all their faults were professionally highly skilled and confident in their natural right to command and lead. In the deferential and violent society of eighteenth-century England such qualities backed by a savage discipline brought out the unique mixture of aggressiveness and endurance which characterized the British sailor in battle. One point in the book does stand out, the perceptive remark that although the sailor was a vital commodity always in short supply as wars lengthened and grew in scale, the Admiralty never seemed to face up to the task of preventing the large wastages from disease and desertion which, far more than battle casualties, frequently threatened Britain's naval supremacy. What was done was the work of individual enlightened admirals and captains, and Commander Kemp's appreciation of their achievements, along with his inclusion of lengthy extracts from contemporary sources, is the chief merit of his book.

It is a great pity that his last chapter, taking on the story from where Professor Lloyd left off, from 1860 to 1914, is so slight. It is in this period, and in the period between the two world wars, that the social history of the Royal Navy has been so neglected and offers an attractive field for young scholars, especially those interested in a quantitative and sociological approach.

LARN, RICHARD. *Cornish Shipwrecks.* Volume 3: The Isles of Scilly. 238pp. Newton Abbot: David and Charles. £2.50.

Previous volumes have dealt with wrecks off the southern and northern Cornish coasts. Mr. Larn is a diver, personally acquainted with many of the wrecks he describes. The rocky Scillies have spelled the doom of many a fine ship from Sir Cloudesley Shovell's fleet in 1707 to the Torrey Canyon of 1967, and the stories of their fate and, whenever possible, the exact location of their remains, are faithfully chronicled. The illustrations and charts are of good quality and there is a serviceable index and bibliography.

Philosophy

Hegel's Philosophy of Mind. Translated by William Wallace and A. V. Miller. 320pp. Clarendon Press: Oxford University Press. £3.75 (paperback, £1.50)

Hegel's Philosophy of Mind contains a reissue of William Wallace's translation of the third part of Hegel's *Encylopaedia*, together with the first English version of the *Zusätze* to the latter assembled for the 1845 Collected Edition by Ludwig Boumann. The translator is A. V. Miller, who last year produced an admirable translation of Hegel's *Philosophy of Nature* (part II of the *Encyclopaedia*); as with that work there is a clear and useful foreword by Professor J. N. Findlay. The new material in the present volume certainly illuminates the terse paragraphs Hegel himself published, which were of course meant only as "*outlines*" to be filled out in lectures.

One point of particular interest which emerges is the stress laid, in the opening sections on "anthropology", on the profound extent to which soul at the rudimentary level is immersed in nature; another, closely connected, is Hegel's many references at this stage to what he calls the "corporealization" of mental states. It is not fanciful to see here something like a rationale for the important but unargued doctrine of Wittgenstein that every internal state has its "natural" external expression. There is also, as is usual with Hegel, material of more dubious value in the volume, but the general effect, even so, must be to stimulate interest and increase understanding. The Clarendon Press is to be congratulated on having now brought its edition of the *Encyclopaedia* to completion, and Mr. Miller on having proved a worthy successor to Wallace, whose translations of Hegel remains remarkably fresh and pointed despite the time that has elapsed since their first publication.

SHAH, IDRIES. *Thinkers of the East.* Studies in Experimentalism. 198pp. Cape. £2.10.

In Arabic, the same root signifies both "the east" and "light", or "illumination". For this reason, Saiyyid Idries Shah is justified in the title which he has chosen for this further volume of extracts from the almost inexhaustible corpus of Sufi lore and legend, even though the region from which the majority of the Masters emanate – the Middle East to Europeans – is for Oriental readers the Near West. The author, for long recognized as the leading interpreter of Sufi methods and practice to the Western world, has gathered together from many different sources a series of anecdotes and stories, some recorded and others orally transmitted, which illustrate the ancient but still continuing instructional work of the men known in Europe from the Middle Ages onwards as the illuminati. Their teaching lies at the very heart of many revealed religions; but it is their insistence upon the distinction between wisdom and mere learning, their opposition to pedantry and formalism, and their emphasis upon the growth and development of the individual seeker after truth which constitute their main appeal to the modern man who finds current materialistic outlooks and attitudes insufficient for his needs. Their instructional methods, though contrary to canons unquestioned for centuries, are now seen to anticipate, if not to extrapolate, the conclusions suggested by modern psychological discoveries. The extracts themselves, racily translated and very readable, contain an inner significance discoverable only through careful study and reflection.

Religion

BROWN, FRED. *Faith without Religion.* 156pp. SCM Press. Paperback, 95p.

Major Brown, author of *Secular Evangelism*, is a former Salvation Army officer, dismissed because he declined to submit his earlier book to official censorship by the Army. In this second book he continues his thinking about the communication of Christian faith to secular man. His major concern is to stress the unconscious commitment—in the sense of faith without religious categories to describe it—of so many contemporary men and women, especially young people, to a "reality" which they may name "love" or "life", but which commands their allegiance and provides fulfilment (a secular version of "salvation") for their lives. Far from condemning this commitment as wrong or improper because it lacks the specifically Christian tag, Major Brown believes that it represents a response to a genuine working of God, through his many incognitos, in human experience. While this book will irritate the conventionally orthodox, it will please those who are working for a re-conception of Christian belief today. And in itself it is a moving record of the way in which a fairly conventional Christian evangelist was brought to see that God is much bigger and more generous than the teaching he had accepted would allow. If nobody else reads it, the clergy (of all denominations) should do so, to broaden their sympathies and open their eyes to God's secular working.

KEEN, SAM. *To a Dancing God.* 160pp. Collins. £1.05. Fontana: Paperback, 30p.

Mr. Keen is an American philosophical theologian who has lately been director of the well-known Esalen Institute's theological programme. He has written several earlier books in his own field, for the most part emphasizing the role of imagination and wonder in religion. In *To a Dancing God* he writes informally about education, philosophy, theology, and psychology, making his point of departure the need to recover what in one essay he describes as "being carnal"—he means fully sensuous, compassionate, and sensitive. Only so, he urges, can the "experience of the holy" be available. The book is easy to read, highly personal, often very suggestive, but also somewhat irritating since the author (whether intentionally or not) seems to want to be a little coy and succeeds in being over-clever in phrase. At the same time, as a counter to the highly conscientious seriousness of much contemporary theology, the book will serve a purpose; and it is pleasant to come across a trained thinker who can write with a delightfully (if irritatingly) light touch.

VACANT APPOINTMENTS AND PUBLIC NOTICES &c

Librarians

LONDON BOROUGH OF BARNET

LIBRARY SERVICES

APPLICATIONS are invited for the POST of LIBRARIAN in CHARGE of the [illegible] Library. Salary A.P. Grade [illegible] to £2,115 [illegible] according to experience and qualifications. [illegible]

[illegible]

Application forms and further details from the Borough Librarian, [illegible] N.W.4. Closing date [illegible] 1971.

P. H. WILLIAMS, Town Clerk.

HOMERTON COLLEGE, CAMBRIDGE

APPLICATIONS are invited from CHARTERED LIBRARIANS for the POST of ASSISTANT LIBRARIAN in the College Library. Some cataloguing experience [illegible]. The post is [illegible] within the range [illegible].

Apply by letter to the Librarian as soon as possible, giving full details.

CAMBRIDGESHIRE AND ISLE OF ELY EDUCATION COMMITTEE

COUNTY LIBRARY

CHILDREN'S LIBRARIAN

AP 4, £1,776 to £2,025

Applicants should be Chartered Librarians with suitable qualifications and experience for the POST of Librarian in charge of the service to children and schools. Help with removal expenses given in approved cases. House purchase facilities may be available.

Further particulars from the Chief Education Officer, Shire Hall, Cambridge, CB3 0AP, to whom applications, giving age, particulars of education, qualifications, experience, present post, grade and salary, and the names and addresses of two people to whom reference may be made, should be sent to reach him by 24th May, 1971.

COUNTY BOROUGH OF BIRKENHEAD

PUBLIC LIBRARIES

CHIEF ASSISTANT

APPLICATIONS are invited for the POST of CHIEF ASSISTANT and LENDING LIBRARIAN. Salary within range A.P. IV/V (£1,776 to £2,268). Applicants must be Chartered Librarians with experience in public library administration and organisation.

Applications, stating age, qualifications and experience and giving the names of two referees to reach the Librarian and Curator, Central Library, Birkenhead, L41-2XB, not later than 21st May, 1971.

Ian G. Holt, Town Clerk.

THE CITY UNIVERSITY

St. John Street, London, E.C.1

LIBRARY ASSISTANT

APPLICATIONS are invited for a POST of LIBRARY ASSISTANT in the University Library. [illegible] qualifications are required.

Salary scale [illegible] according to qualifications and experience.

Applications giving full particulars and the names of two referees should be sent by 17th May, 1971, to the Librarian at the above address.

DURHAM

ST. HILD'S COLLEGE AND BEDE COLLEGE

(Re-advertisement)

CHARTERED LIBRARIAN to work with the Librarian in the colleges' library. Interest in children's books and in new media essential. Familiarity with Ross classification helpful. Salary at an appropriate point on N.J.C. Librarian's scale.

Applications in writing should reach Mrs. D. Kneeshaw, St. Hild's College, Durham as soon as possible. Previous applicants will be reconsidered.

HERTFORDSHIRE COUNTY COUNCIL

ST. ALBANS COLLEGE OF FURTHER EDUCATION

29 Hatfield Road, St. Albans

APPLICATIONS are invited for the APPOINTMENT of a QUALIFIED SENIOR LIBRARY ASSISTANT in the College Library. Students recently completing Library School will be considered. Salary in the range A.P. I-II (£1,071 to £1,776). A.P. II for candidates who have passed Part I of the Library Association's Final Examinations and A.P. II for completion of Part II.

Further details obtainable from College Registrar.

LANCASHIRE COUNTY COUNCIL

DEPUTY DIVISIONAL LIBRARIAN

at the

DROYLSDEN DIVISIONAL LIBRARIES

DIVISIONAL CHILDREN'S LIBRARIAN

at the

RAMSBOTTOM DIVISIONAL LIBRARIES

Salary: Librarians' Scale, £1,413 to £1,776. Starting point commensurate with qualifications and experience.

Qualifications: Chartered Librarian.

Appointments superannuable and subject to certificate of fitness.

Application (naming two referees) and indicating for which post(s) candidate wishes to be considered to County Librarian, 143, Corporation Street, Preston, PR1 8RH by the 14th May.

THE LIBRARY OF THE INSTITUTE OF CHARTERED ACCOUNTANTS IN ENGLAND AND WALES

has two vacancies

(1) LIBRARY ASSISTANT (recognised library qualifications preferred) to handle loans, ordering, some indexing and reference work.

(2) PERIODICALS ASSISTANT, to check in and circulate periodicals and maintain other library records.

Three weeks holidays in full year/luncheon vouchers.

Salary negotiable according to qualifications, age and experience.

Ring 628 7060 for further details and appointment.

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LONDON BOROUGH OF HACKNEY

LIBRARIES DEPARTMENT

ASSISTANT MUSIC LIBRARIAN A.P.2

£1,362 to £1,605 per annum (inc.)

Applications are invited from suitably qualified librarians for this post.

CATALOGUING ASSISTANT, A.P.1

£1,152 to £1,401 per annum (inc.)

Applications are invited from persons with suitable experience for this post.

Application forms are available from the Town Clerk, Town Hall, Mare Street, Hackney, E.8, 1EA. Closing date 17th May 1971. Please quote reference 1LS.

LONDON BOROUGH OF HACKNEY

LIBRARIES DEPARTMENT

APPLICATIONS are invited from suitably qualifying LIBRARIANS for the post of Assistant Branch Librarian, AP4. Salary £1,605 to £1,876 (inclusive).

Forms of application from Town Clerk, Town Hall, Mare Street, Hackney, E8 1EA, returnable by 17th May 1971.

LONDON BOROUGH OF HACKNEY

LIBRARIES DEPARTMENT

SENIOR BIBLIOGRAPHICAL AND CATALOGUING ASSISTANT

Applications are invited from suitably qualified and experienced persons for the above POST.

Salary AP [illegible] to £1,896 inclusive.

Forms of application and further details from the Town Clerk, Town Hall, Mare Street, E8 1EA, returnable by 17th May 1971. Please quote reference 1LS.

LONDON BOROUGH OF HOUNSLOW

EDUCATION DEPARTMENT

MARIA GREY COLLEGE OF EDUCATION

300 St Margaret's Road, Twickenham

LIBRARIAN

(Salary AP 2, £1,362 to £1,605)

Applicants should hold Part I of the Library Association examination and have suitable experience to relieve Librarian as required. Duties include book ordering, processing, cataloguing, reference work and inter-library loans.

Application forms from the Director of Education, 88 Lampton Road, Hounslow, returnable by 15th May, 1971.

LONDON BOROUGH OF HOUNSLOW

EDUCATION DEPARTMENT

FULL-TIME LIBRARIANS (TWO) required at Secondary Schools in Hounslow and Brentford areas. Salary, Grade AP 2, £1,362 to £1,605 (AP 3 £1,605 to £1,800 if Chartered). Successful applicants will be responsible for the administration of the school library and should be experienced.

Application forms from the Director of Education, 88 Lampton Road, Hounslow, Middlesex, returnable by 21st May, 1971.

PONTYPRIDD URBAN DISTRICT COUNCIL

APPOINTMENT OF BRANCH LIBRARIAN

RHYDYFELIN BRANCH LIBRARY

Applications are invited from persons who have passed the Part 1 Examination of the Library Association for the POST of BRANCH LIBRARIAN, Rhydyfelin Branch Library, Pontypridd. Salary A.P. Grade II (£1,272 per annum to £1,515 per annum) with point of entry in accordance with experience and present salary. Appointment superannuable and subject to satisfactory medical examination.

Applications, together with the names and addresses of two referees, to be received by the undersigned not later than Tuesday, 25th May, 1971.

Canvassing directly or indirectly will disqualify and applicants must disclose whether they are related to any Member or Senior Officer of the Council.

E. Trevor Thomas, Deputy Clerk of the Council, Municipal Buildings, Pontypridd, Glamorgan.

28th April, 1971

CITY OF PORTSMOUTH

(Incorporating the seaside resort of Southsea)

SENIOR ASSISTANT

Librarians Grade, £1,038 to £1,776.

Suitably qualified person required.

Further details regarding the above post to be obtained from the City Librarian, Central Library, Portsmouth, PO1 2DX, to whom applications should be sent by Friday, 14th May, 1971. Post No. 193.

SHEFFIELD

THE UNIVERSITY

APPOINTMENTS BOARD

APPLICATIONS are invited from GRADUATES with qualifications in Librarianship and/or information work for a new POST of LIBRARIAN/INFORMATION OFFICER to the Appointments Board, who will have the status of an Administrative Assistant, tenable from 1 August 1971. The Board assists and advises students and graduates in careers and related matters. Candidates should preferably have had appropriate experience. Initial salary according to qualifications in the range £1,153 to £2,316.

Further particulars may be obtained from the Registrar to whom applications (3 copies) should be sent by 17th May, 1971, quoting reference R.70/A5.

THE QUEEN'S UNIVERSITY OF BELFAST

ASSISTANT LIBRARIANS

APPLICATIONS are invited for TWO POSTS of ASSISTANT LIBRARIAN one of whom will be deputy to the Sub-Librarian (Reader Services) and will be in charge of the Issue Desk Services in the Main Library. The other will be deputy to the Sub-Librarian (Acquisitions), and the main duties will include bibliographical checking, correspondence with suppliers and teaching staff, and supervision of the work of the division. Other things being equal, preference will be given in one of the appointments to a social science graduate.

Applications should be received by 22nd May, 1971. Further particulars may be obtained from The Secretary, The Queen's University of Belfast, Belfast, BT7 1NN, Northern Ireland. (Please quote reference 71/TLS.)

THE UNIVERSITY OF SHEFFIELD

THE LIBRARY

APPLICATIONS are invited from professionally qualified honours GRADUATES in pure science or the social sciences for TWO POSTS of ASSISTANT LIBRARIAN (1. Reader Services, 2. Cataloguing) from 1st August 1971, or as soon as possible thereafter. Relevant experience desirable.

Salary in the range £1,491 to £2,865 with F.S.S.U. provision.

Further particulars from the Registrar to whom applications (three copies) should be sent by 5th June 1971. Quote Ref. R.76/A1.

CITY OF SWANSEA

PUBLIC LIBRARIES DEPARTMENT

JUNIOR LIBRARIAN

Librarians' Special Grade—£1,413 to £1,776 per annum

Applicants must be CHARTERED LIBRARIANS.

Applications stating age, experience and qualifications must reach the Chief Librarian, Central Public Library, Alexandra Road, Swansea, SA1 5DX, by 15th May, 1971.

TECHNICAL LIBRARIAN

required to take charge of separate technical library (CI/SfB) and Barbour Index to maintain card indexes to periodicals, products etc, and help students.

Applications or enquiries to Librarian, Architectural Association, 36 Bedford Square, W.C.1. Tel. 01-636 0974.

LONDON BOROUGH OF WANDSWORTH

SENIOR LIBRARY ASSISTANT

Bibliographical Services

£1,896 to £2,115 AP4

Applications are invited from Associates of the Library Association for the above post.

Experience of staff control, cataloguing and classification and accession procedures is required.

Forms from the Borough Librarian, District Library, West Hill, Wandsworth, S.W.18 (01-874 1143). Close 20th May. Interviews on 28th May, 1971.

WARWICKSHIRE EDUCATION COMMITTEE

COUNTY LIBRARY

CHELMSLEY WOOD REGION

APPLICATIONS are invited from Chartered Librarians with suitable experience for the POST of LENDING LIBRARIAN.

Salary A.P. 4 (£1,776-£2,025).

Removal expenses and lodging allowance will be paid where applicable.

Further particulars from the County Librarian, County Library, The Butts, Warwick, to whom application should be sent by 17th May, 1971.

C. J. CHENEVIX-TRENCH, County Education Officer.

Public and University Appointments

AHMADU BELLO UNIVERSITY

NIGERIA

APPLICATIONS are invited for the POST of MEDICAL LIBRARIAN in the University Library. Applicants should possess a degree and professional library qualifications or F.L.A. with considerable library experience, preferably in a Medical or Scientific library. Salary: £N2,750 per annum (£N6 = £7 sterling). Salary supplemented by £525 per annum (sterling) and education allowances and children's holiday visit passages payable in appropriate case by British Government. Family passages; various allowances; superannuation scheme; biennial overseas leave.

Detailed applications (six copies) naming three referees by 21 May, 1971, to Inter-University Council, 90/91 Tottenham Court Road, London, W1P 0DT, from whom particulars are available.

UNIVERSITY OF CAMBRIDGE

UNIVERSITY ASSISTANT LECTURESHIP IN ITALIAN

The Appointments Committee of the Faculty of Modern and Medieval Languages intend to appoint a University Assistant Lecturer in the Department of Italian, to hold office from 1 October, 1971, or from as soon after that date as possible. The appointment will be for three years in the first instance, with the possibility of reappointment, for two years. The maximum tenure of a University Assistant Lectureship is five years.

The pensionable scale of stipends of a University Assistant Lecturer is £1,629 a year, rising by annual increments to £2,178 a year.

Candidates should send ten copies of their application, together with the names of two or more referees, to the Secretary of the Appointments Committee, Faculty of Modern and Medieval Languages, Sidgwick Avenue, Cambridge, CB3 9DA, so as to reach him not later than 28 May, 1971.

UNIVERSITY OF DAR ES SALAAM

TANZANIA

APPLICATIONS are invited for POST of PROFESSOR of LITERATURE tenable as soon as possible. Applicants should have teaching experience appropriate to the post and relevant publications in the fields of modern, contemporary, avant garde and socialist literature, especially drama. Salary scale: £EA3,180 per annum (£EA6 equals £7 sterling). Salary supplemented by £1,068 (sterling) and education allowances and children's holiday visit passages payable in appropriate case by British Government. F.S.S.U. Family passages; biennial overseas leave.

Detailed applications (six copies) naming three referees by 19 May, 1971, to Inter-University Council, 90/91 Tottenham Court Road, London, W1P 0DT, from whom particulars are available.

UNIVERSITY OF KEELE

APPLICATIONS are invited from HONOURS GRADUATES for a POST as ASSISTANT LIBRARIAN in charge of Reader Services. Library experience and professional qualifications are desirable. Salary scale £1,353 or £1,491 (according to qualifications) to £2,865.

Applications, giving full details of qualifications and experience and the names of two referees, should be sent not later than 12th May, 1971, to the Librarian, The University, Keele, Staffordshire, ST5 5BG, from whom further particulars may be obtained.

UNIVERSITY OF MALAYA

DEPARTMENT OF ENGLISH

APPLICATIONS are invited for one POST of LECTURER/ASSISTANT LECTURER from candidates with special interests in American Literature. Candidates should hold a higher degree in this field. Subject to academic suitability and experience, preference will be given to candidates competent in Bahasa Malaysia (Malay).

Emoluments: (Approximate sterling equivalents) are:

(i) Salary Scale: Lecturers, £1,498 by £65 to £1,889/£1,954 by £73 to £2,320 per annum. Assistant Lecturers: £1,303 by £65 to £1,433 per annum.

(ii) In addition a Variable Allowance is at present payable at the following rates: 35 per cent of basic salary subject to certain maxima depending on marital status; minimum £244 per annum, maximum £651 per annum.

(iii) In exceptional cases, an Inducement Allowance may be paid.

Housing: If available, housing is provided for which a rental of £163 to £204 per annum will be charged. Staff members may opt for a supplementary housing allowance in lieu of University housing.

Medical benefits are provided under the Medical Services Scheme of the University.

Superannuation: Staff members are required to join the Academic Staff Provident Scheme to which the staff member contributes 5 per cent and the University 15 per cent of basic salary.

Further particulars and application forms are obtainable from the Association of Commonwealth Universities (Appts.), 36, Gordon Square, London, WC1H 0PF (Tel. 01-387 8572).

The closing date for the receipt of applications in Kuala Lumpur and London is 10th June, 1971.

UNIVERSITY OF IFE

NIGERIA

APPLICATIONS are invited for the POST of DEPUTY LIBRARIAN in the University Library. Applicants must have a good degree plus professional qualifications. Candidates must have held a position of responsibility in the area of either Technical Services or Readers Services in an active and forward looking University Library. Salary £N2,750 per annum (£N6 = £7 sterling). Salary supplemented by £625 per annum (sterling) and education allowances and children's holiday visit passages payable in appropriate case by British Government. Superannuation scheme; various allowances; family passages; regular overseas leave.

Detailed applications (six copies) naming three referees by 19 May, 1971, to Inter-University Council, 90/91 Tottenham Court Road, London W1P 0DT, from whom particulars are available.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

Applications are invited for a post of

ASSISTANT LIBRARIAN

in the Library of the School, which is shortly moving into new accommodation in the new Medical Teaching Centre, Heath Park, Cardiff. Candidates should be graduates with an interest in the medical literature and should preferably have a professional qualification. Salary scale £1,491-£2,040 (under review).

Further details may be obtained from the Registrar, 31 Newport Road, Cardiff, CF2 1YL, to whom applications should be sent by 19th May, 1971.

LONDON GRADUATE SCHOOL OF BUSINESS STUDIES

Junior

LIBRARY ASSISTANT

required 17-19.

Interesting post with excellent facilities in busy academic library in new building. Education 'O' level standard at least. Good opportunity for young person intending to follow career in Librarianship. Initial salary about £800 p.a. Applications to the Librarian, L.G.S.B.S., Sussex Place, Regents Park, N.W.1 (262 5050).

MOUNT ALLISON UNIVERSITY

Sackville, N.B.

Canada

Applications are invited for a position in the Department of English, teaching duties to commence September 1971. The candidate may be appointed at any rank. A strong background in Restoration and eighteenth century literature will be favoured, as well as an interest in undergraduate teaching. Salary minima are: Professor $17,000; Associate $13,200; Assistant $10,300; Lecturer $8,200. Send applications before June 15, 1971, to Dr. L. A. Durhemin, Department Head.

UNIVERSITY OF OTAGO

Dunedin, New Zealand

WILLIAM EVANS RESEARCH FELLOWSHIP

APPLICATIONS are invited from suitably qualified persons for appointment as William Evans Fellow, to undertake research based on material contained in the Hocken Library, the collections of which relate to the history (including art history) and ethnology of New Zealand and the Pacific Islands.

The appointment will be for a period of two years but consideration will be given to extending it to a third year if the Fellow's programme of work warrants it. The salary will be fixed according to qualifications and experience, at a suitable figure up to $NZ6,000 per annum. Approved travelling expenses to and from Dunedin will be provided.

(Note:—$NZ1.00 equals £46.67 stg.; $US112; $A100.)

Those who wish to apply for this position are asked to write to the Registrar of the University, or to the Secretary-General, Association of Commonwealth Universities (Appointments), 36 Gordon Square, London WC1H 0PF (tel 01-387 8572), for further information.

Applications close in London and Dunedin on 31 May, 1971.

THE UNIVERSITY OF WARWICK

RESEARCH FELLOWSHIP IN COMPARATIVE LITERATURE

APPLICATIONS are invited for a RESEARCH FELLOWSHIP in COMPARATIVE LITERATURE, for work in either the Renaissance or the modern period. Candidates should have interests in two or more of the following fields of literature and civilization: English or American, French, Italian, German. The appointment will be for two years commencing on 1st October, 1971. Salary scale £1,620 by £138 to £1,767 per annum with F.S.S.U.

Further details and application forms may be obtained from the Registrar, University of Warwick, Coventry CV4 7AL, quoting Ref. No. 49/A/71. Closing date for applications is 21st May, 1971.

Other Vacant Appointments

INSTITUTE OF OPHTHALMOLOGY

(University of London)

Judd Street, London, WC1H 9QS

TECHNICAL EDITOR required by September, 1971, for two journals (medical), one a quarterly abstracting journal. A degree or experience in technical journalism and some knowledge of modern languages desirable.

Salary range £2,692-£3,241 per annum. Applications with curriculum vitae and the names of two referees to The Secretary at the above address by 20th May, 1971.

LEEDS POLYTECHNIC

DEPARTMENT OF LIBRARIANSHIP

Lecturer (Grade I or II) CATALOGUING/INFORMATION RETRIEVAL.

Applicants should be chartered librarians and preferably graduates.

Salary scales: Lecturer I £1,330 to £2,200; Lecturer II £1,947 to £2,517.

Further details and application forms from the Academic Officer, Calverley Street, Leeds LS1 3HE, to whom applications should be submitted by 24th May, 1971.

THE UNIVERSITY OF SHEFFIELD

POSTGRADUATE SCHOOL OF LIBRARIANSHIP AND INFORMATION SCIENCE

APPLICATIONS are invited for the POST of LECTURER in the above School, duties to commence 1 October, 1971. Candidates should normally be experienced Honours Graduates. Salary in the range £1,491 to £3,417 according to qualifications and experience.

Further particulars from the Registrar to whom applications should be sent by 3d May, 1971. Quote Ref. R.74/AL.

LANCASH

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Appointmen

TUTOR LIBR

A TUTOR LIBRARIAN for 1st September cants should be Ch rians and should some teaching further education appointed will be sible to the Pr Library Service and will make a bution probably General Studies Salary in accord Burnham (F.E.) turer Grade I—£1, according to qu experience, with teacher training. Further Informati tion forms from

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to whom they should as soon as possible

EDITORIAL ASS

£810-£1,18

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Good working in these modern, situated Laborator Applications stati relevant details and salary to the Officer at the abov as soon as possible Ref. TLS/123.

Universty of

ANDERSONIAN LIB

Assistant Lib

Grade

Required for the Department. Applic be Chartered Librar

Salary Scale: £1,

(Reference L 41)

Application Form obtained from Th Officer, University of George Street, Glasgo be returned by 14th M

NATIONAL LIBRA

WALES

VACANT APPOINTMENTS AND PUBLIC NOTICES &c

eg Amaethyddol Cymru/Coleg Addysg
Bellach Aberystwyth
Agricultural College/Aberystwyth College
of Further Education

INT COLLEGE LIBRARIAN

College of Agriculture, now being established at Aberystwyth, the first intake of students in September, 1971, and will ND and O.N.D. courses in Agriculture. The College of ucation is already established, but will move to new premises site as the Agricultural College.

provided at the College of Further Education include full- for secretarial and nursing students, part-time vocational Biology to H.N.C. standard, various technical and arts wide range of non-vocational courses.

library has been designed as a learning resources centre, with professional qualifications is sought, who will promote library and information services, and instruct staff in the use of the services.

of salary £1,230-£2,200 (Teachers in Departments of Further England and Wales 1971, Lecturer Grade II). Commencing ing on experience and qualifications.

cent of reasonable removal expenses will be paid together for a maximum period of four months, if applicable, accommodation is sought.

details are available from the undersigned. Closing date of applications, 17th May, 1971.

Agricultural College,
Fawr,
YTH SY23 3AL.

DAVID W. MORRIS,
S. L. BOWEN,
(Principals).

NEWCASTLE UPON TYNE POLYTECHNIC LIBRARY

as soon as possible:

Librarians (AP.5) (4 posts) to be responsible for the organisa- development of the library service within the subject fields wing Faculties:

- Art and Design
- Business and Management Studies
- Community and Social Studies
- Science and Technology

cessful candidates will be involved in the rapid expansion library services and in the planning of a new library Preference will be given to graduates with a post-graduate qualification.

Librarian (AP.2/3) to undertake general duties in a new Library.

Clerical I) (several posts) to undertake general Polytechnic Library.

AP.5 £2,025-£2,268
AP.2/3 £1,272-£1,776
(Minimum salary for Chartered Librarians £1,413)
Clerical I £429-£993 (bar)-£1,131

Particulars and application forms, returnable within twelve appearance of this advertisement, from The Registrar, upon Tyne Polytechnic, Ellison Building, Ellison Place, upon Tyne, NE1 8ST.

COUNTY COUNCIL EDUCATION COMMITTEE

LIBRARIAN

ions are invited for the post of Branch Librarian Branch Library. Salary Scales: Chartered Lib- £1,413 to £1,776 per annum. Part 1 Registration or 2 or 3 Groups of Registration or equivalent, to £1,272. Responsibility element of £200 is pay- Application forms and further particulars are obtain- the Director of Education, County Buildings, Lin- to whom applications should be returned as soon possible.

Buildings,
GOW, 22nd April, 1971.

JOHN CALDER,
County Clerk.

LONDON BOROUGH OF SUTTON

Education Department
Libraries Division

(A) Senior Assistant Librarian

Grade: Special (Librarians). Salary Scale: £1,128-£1,866 per annum inclusive of London Weighting.

(B) Assistant Cataloguer

Grade: A.P. 1/2. Salary Scale: £1,128-£1,605 per annum inclusive of London Weighting.

Applicants for either post must hold at least Part I of the Library Association Examination and in the case of post (B) ability to use a typewriter would be an advantage. Point of entry to the Grade in each case will be dependent upon qualifications and experience.

Post (A) is interchangeable with others of similar grading, but the successful applicant will be allocated initially to assist the Branch Librarian in preparatory work for the new Roundshaw Library, Wallington, due to be opened within the next few months.

Details and application forms (returnable within 14 days of the first appearance of this advertisement) obtainable from Roy Smith, F.L.A., Borough Librarian, Central Library, Manor Park Road, Sutton, Surrey.

T. M. H. Scott,
Principal Chief Officer.

Aberdeen College of Education

Librarian in Charge of Bibliographical Services

Candidates should hold at least a specialist qualification in librarianship.

Salary scale: £1,719 to £2,268.

Placing may be given for suitable experience.

The successful applicant will be expected to take up duty on 1st August or by arrangement.

Further information and forms of application may be obtained from the College Secretary, Aberdeen College of Education, Hilton Place, Aberdeen, AB9 1FA, with whom applications must be lodged by Friday, 28th May, 1971.

J. SCOTLAND, Principal.

YALE UNIVERSITY **THE LAW SCHOOL**

FOREIGN LAW LIBRARIAN

The post of Foreign Law Librarian at the Yale Law School has recently become vacant. The School expects to fill the post in the near future. Under the general direction of the Librarian, the Foreign Law Librarian is responsible for the School's collection of some 120,000 foreign volumes out of a law library of almost half-a-million volumes. In particular, the School is looking for a person who can continue to build up the Western European collection as well as develop an African collection. Candidates should have had some experience as librarians. The salary will be on a scale of $12,000-$15,000.

Applications should be addressed to the Librarian, Yale Law School, New Haven, Conn. 06520, U.S.A. Initial enquiries may be made to: Professor Robert Stevens, Oxford and Cambridge University Club, Pall Mall, London, S.W.1.

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The Library Officer will be responsible for the development and operation of a technical library and an information and documentation service covering in particular Urban and Regional Planning; Road Construction, Road Traffic and Road Safety; Building and Construction; and Water Resources and Conservation.

Applicants should hold the Fellowship of the Library Association of Ireland, the Diploma in Library Training, University College, Dublin, or approved equivalent qualification, and have experience of work in a technical library. A specialist qualification or experience in information science is very desirable, and a knowledge of European languages would be an advantage.

The appointment will be at Research Assistant or Research Officer level depending on qualifications and experience. Salary range for Research Assistant grade is £1,230-£2,615 and for Research Officer grade £2,690-£3,325. A non-contributory superannuation scheme and contributory widow's and orphan's scheme will operate.

Application forms may be obtained from: The Managing Director, An Foras Forbartha, St. Martin's House, Waterloo Road, Dublin 4, Ireland. Telephone 64211. Closing date for receipt of applications Thursday, May 20, 1971.

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For Library Services to Hospital patients and housebound readers. Applicants should be Librarians with appropriate qualifications and experience.

London Borough of TOWER HAMLETS

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